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The Mining Journal,

RAILWAY AND COMMERCIAL GAZETTE.

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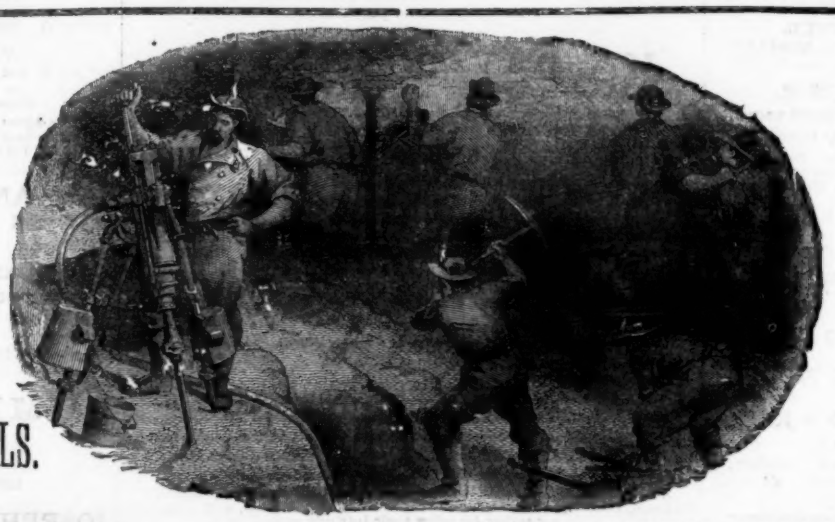

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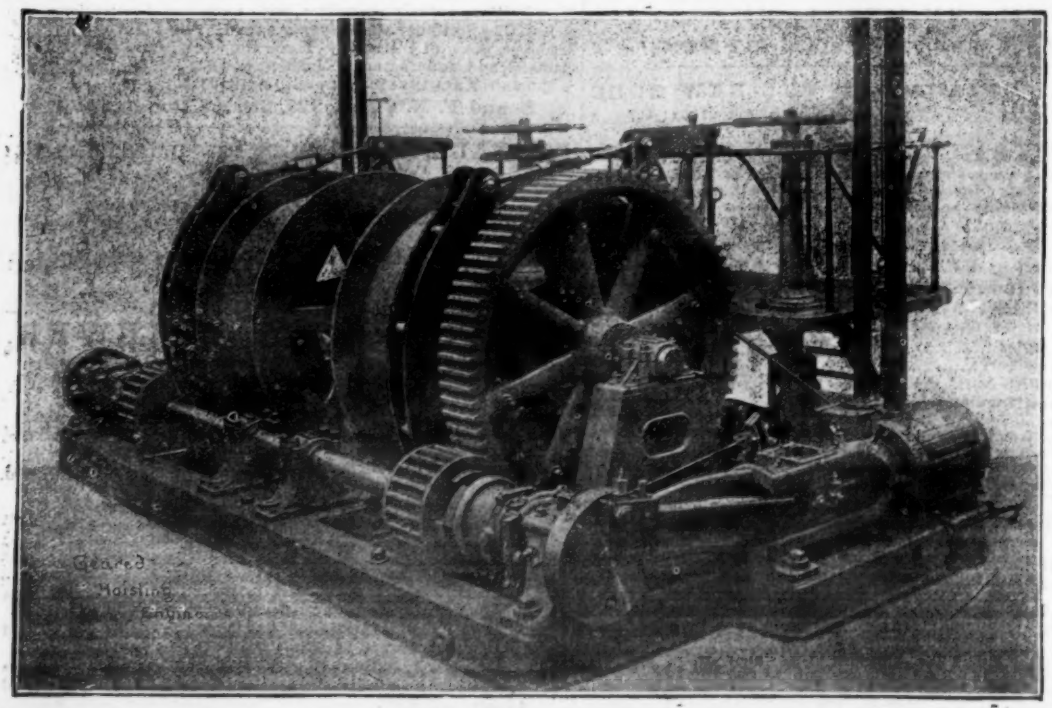

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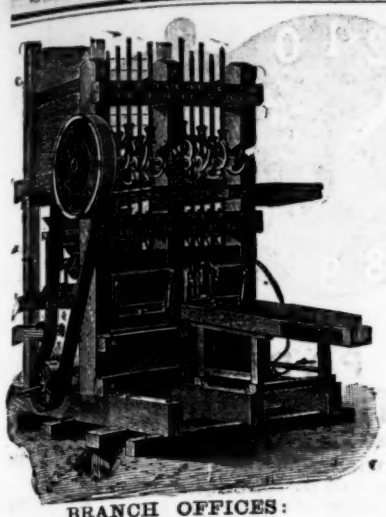

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IS RECOMMENDED TO CONTRACTORS, MINERS, PIT SINKERS, QUARRYMEN, AND OTHERS, AS BEING THE SAFEST OF ALL EXPLOSIVES.

TONITE is a most efficient and economical blasting agent, and is largely in demand. It is exempt from freezing and the consequent dangerous process of thawing.

THE COMPANY ALSO MANUFACTURE

GELIGNITE, BLASTING GELATINE, &c.
DETONATORS, Suitable for all Classes of Explosives.
ELECTRIC DETONATORS, High or Low Tension.
ELECTRIC APPLIANCES, of all Descriptions.
SAFETY FUSE.

Address—THE COTTON POWDER COMPANY (Limited),
116, QUEEN VICTORIA STREET, E.C.

TURBINES.

FACTS!

Little Giant Turbine.

Unlike other Turbines, with from 12 to 24 water inlets to supply it with water, our LITTLE GIANT Wheel has one Vertical Gate only, so that no waste of water, power, and no stoppages takes place owing to small rubbish lodging in the gates as in other types of turbines.

FULL PARTICULARS SENT FREE.

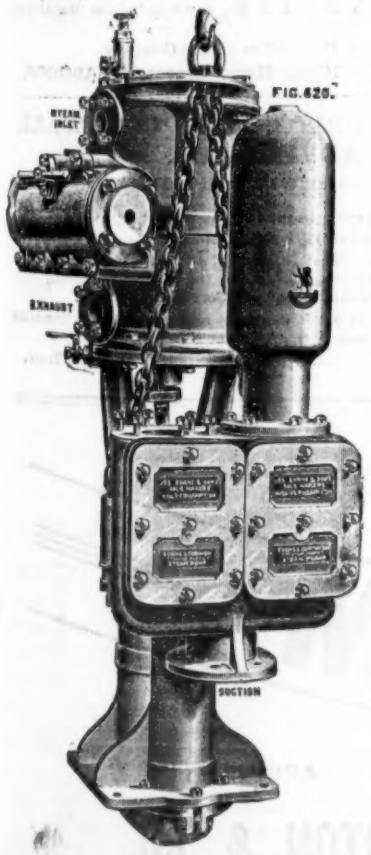
S. HOWES, HYDRAULIC ENGINEER.
64, MARK LANE, LONDON, E.C.
AND AT SILVER CREEK, N.Y., U.S.A.

JOSEPH EVANS & SONS,

Telegrams:
"EVANS," Wolverhampton.

Write for
"MINING PUMP" Catalogue.

Nat. TELEPHONE, No. 7039. TRADE MARK.



"GRIFF" PATTERN "CORNISH" SINKING PUMP.

SINKING PUMPS FOR MINES.

NO TAPPETS, LEVERS, OR EXTRANEOUS GEAR.

"EVANS and TONKIN'S" Patent "CORNISH" SINKING PUMPS have been used on all the recent modern sinking operations of importance, including

North's Navigation Collieries, the Blackwall Tunnel, the Barry Dock Extension, the Griff Colliery Sinkings, the Coppice Colliery, the Fishley Colliery, the Moss Hall Colliery, the North Walbottle Colliery, the West Hallam Colliery, and other large Sinkings, also North Wales, Rand, West African, West Australian, Victorian, South American Gold Mines, &c., &c.

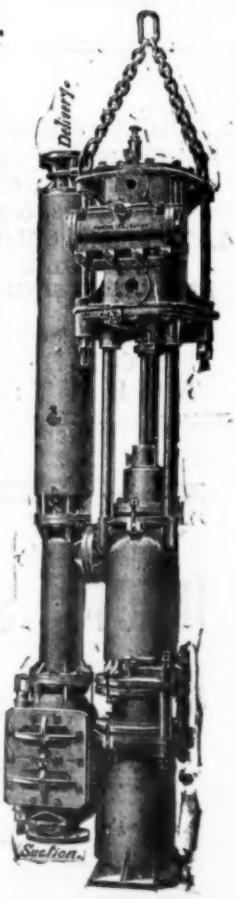
London Office
16, UNION COURT, OLD BROAD ST., E.C.

DEPOTS:
NEWCASTLE-ON-TYNE,
GLASGOW, WAKEFIELD,
MANCHESTER,
CARDIFF, and BELFAST.

JOHANNESBURG.
Etc.

FIG. 875, "FLUOMETER" PATENT STEAM VACUUM PUMP.

The "CORNISH" STEAM PUMP.
The "DUPLEX" STEAM PUMP.
The "RAM" STEAM PUMP.
The "RELIABLE" STEAM PUMP.
DONKEY PUMPS.
HORSE PUMPS.
POWER PUMPS.
AIR COMPRESSORS,
&c.

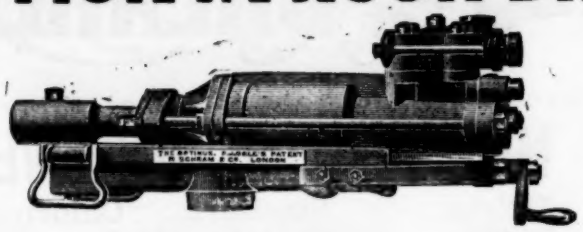


"STRAIGHT-LINE" PATTERN SINKING PUMP

CULWELL WORKS,

WOLVERHAMPTON.

REVOLUTION IN ROCK DRILLING



"OPTIMUS" COMPOUND ROCK DRILL.

(P. J. OGLE'S PATENT.)

Consumes 40 per cent. less Compressed Air than any other Drill at the same time giving the most effectual results.

AIR COMPRESSORS,

WITH COMPOUND AIR AND STEAM CYLINDERS,

Fitted with SCHRAM'S Inlet and Outlet Valves giving the greatest efficiency.

"SCHRAM'S" IMPROVED ROCK DRILLS,

SUPPLIED TO THE INDIAN, COLONIAL, AND OTHER GOVERNMENTS.

2500 IN USE IN ALL PARTS OF THE WORLD.

Hand-Power Diamond Prospecting Drills.

ESTIMATES AND FULL PARTICULARS ON APPLICATION.

RICHARD SCHRAM & CO., 17a, Great George St., Westminster, S.W.

TELEGRAMS "SCHRAM, LONDON," A1, A.B.C. and The Engineering Telegraph Codes Used.

FRIED. KRUPP GRUSONWERK,

MANUFACTURERS OF

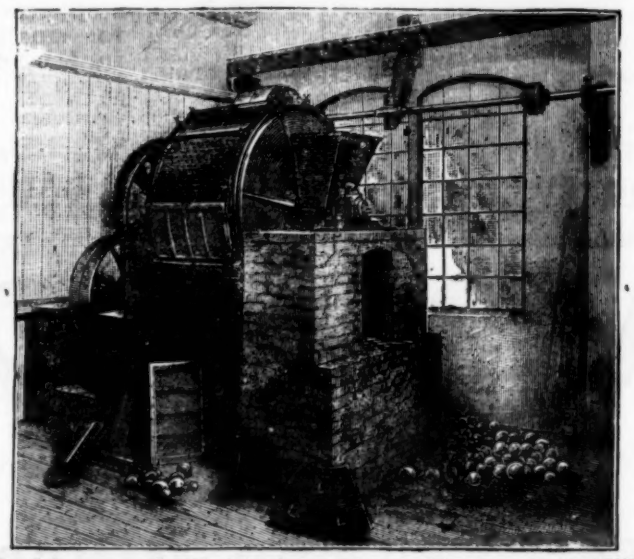
MAGDEBURG-BUCKAU.

1. Chilled Cast Iron, Cast Steel and Malleable Iron Articles.
2. Machinery and Apparatus for treatment of Ore of all description.

GOLD EXTRACTION MACHINERY.

(Laszlo' Amalgamators giving 20 to 40 per cent. more Gold than others.)

SILVER EXTRACTION MACHINERY.



STAMP BATTERIES.

Patent Ball Mills.

(Dry Crushers.)

ORE CONCENTRATION

DRY SEPARATOR

OF

PAPE-HENNEBERG

3. Disintegrating Machinery of all kinds, such as Patent Ball Mills for Ores, Quartz, Cement, Basic Slag Grinding, &c. Excelsior Mills for Food Products, also for Tanneries, Chemical Factories, Sugar Factories, &c. Stone Breakers, Roller Mills, Crushers, &c., &c., Runners.
4. Whole installation for Cement, Porcelain, Emery, Manure, Gypsum, Bone, & Ore Mills.

HYDRAULIC PRESSES. LEAD PIPE PRESSES. COMBINED COFFEE GRINDING AND CLEANSING MILLS. ROLLS FOR ALL METALS. CRANES. RAILWAY MATERIAL.

CATALOGUES IN ALL LANGUAGES.

SOLE AGENT: **W. STAMM, 3, EAST INDIA AVENUE, E.C.**

Watch this Advertisement

Every other week.

PARKIN'S INDICATING SIGNAL BELLS

Are a SURE SAFEGUARD for Enginemen against winding without signal.

The Index stands at 0 till the signal is given, when it points to the number of strokes on the Bell.

Entirely Self-Acting. Steel Fittings.

Prices and particulars,

PARKIN'S SIGNAL WORKS, LIVERSEDGE, YORKS.

SOLE AGENTS FOR SCOTLAND:

Messrs. ARCHD. BAIRD and SON,

59-61, WATERLOO STREET, GLASGOW.

Export Agent—Mr. STEPHEN HUMBLE, Junr.,

Emerson Street, Southwark, S.E.

MACARTHUR-FORREST PROCESS.

TO MINE OWNERS AND OTHERS

Having REFRACTORY GOLD ORES hitherto untreatable at a profit, the MACARTHUR FORREST (PATENT) PROCESS OF GOLD EXTRACTION offers a solution of the difficulty.

The chief features of this Process are:—

SIMPLICITY, ECONOMY IN WORKING, and SMALL COST of PLANT.

PROPRIETORS:—

The Cassel Gold Extracting Co. (Ltd.)

Head Office—108a, Hope Street, Glasgow.

London Office—23, College Hill, Cannon Street, E.C.

Africa—The African Gold Recovery Co, (Ltd), Johannesburg.

Australia—The Australian Gold Recovery Co. (Ltd.), 8, Post Office Chambers, Sydney, N.S.W., Charters Towers, Queensland, and Mr. Geo. S. Fowler, J.P., Adelaide.

United States—The Gold and Silver Extraction Co. of America (Ltd.), Denver, Colo.

Mexico—The Mexican Gold and Silver Recovery Co. (Ltd.), 2a, Calle de Providencia, No. 7, Mexico City, Mexico.

Chili—Mr. J. A. W. Murdoch, Calle Almendro, Valparaiso.

New Zealand—The Cassel Gold Extracting Co. (Ltd.), 6, Herald Buildings, Queen Street, Auckland

Canada—Mr. W. Pellew Harvey, F.C.S., 717 and 719, Pender Street, Vancouver City, British Columbia

The CASSEL GOLD EXTRACTING Co. (Ltd.) are manufacturers of CYANIDE, suitable for the MacArthur-Forrest Process.

For terms, apply at Head Office of the Company,

108a, Hope Street, GLASGOW.

THE WEST BRITON AND CORNWALL ADVERTISER.

The best Family Newspaper for Cornwall and the West of England generally.

MONDAY AFTERNOON, 4 Pages, One Halfpenny.

THURSDAY AFTERNOON, 8 Pages, 56 Columns, One Penny.

The Largest and Most Influential Journal of Cornwall.

The Best Advertising Medium in the West of England.

The Largest Circulation of any Cornish Newspaper.

The "WEST BRITON" contains more reliable information respecting Cornish Mines than any other Newspaper

HEARD and SONS, Publishers, Truro.

For PURE ALUMINIUM

98 to 99½ per cent. (98 per cent. minimum guaranteed) in

INGOTS, STICKS, & ROLLING SLABS;

ALSO FOR

SHEETS, &C., AND

FERRO-ALUMINIUM.

ALUMINIUM.

APPLY TO

HENRY R. MERTON & CO.,

2, Metal Exchange Buildings, Leadenhall Avenue.

LONDON, E.C.

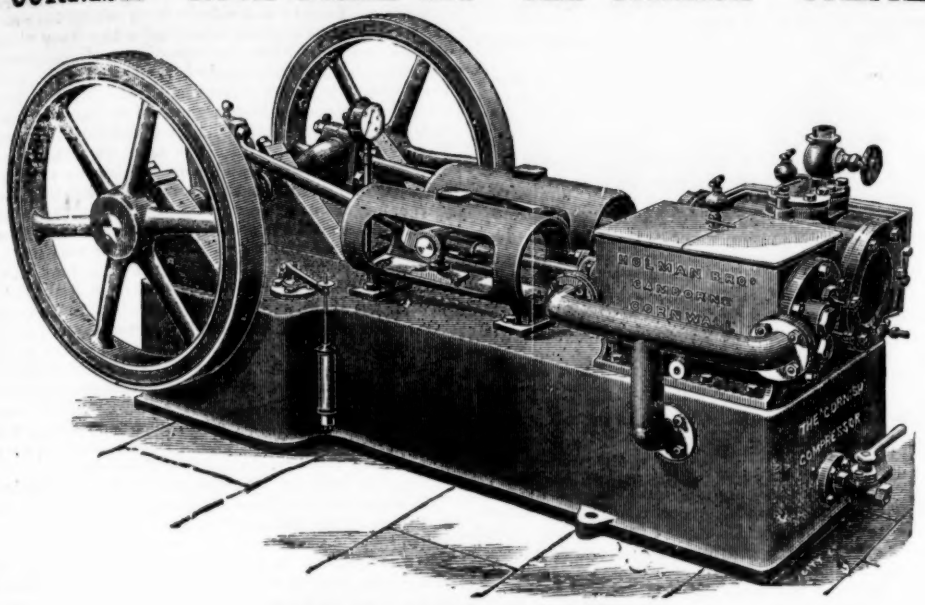
AGENTS FOR THE BRITISH ALUMINIUM COMPANY, LIMITED.

HOLMAN Bros., Camborne, Cornwall.

ESTABLISHED 1839.

Patentees and Sole Makers of

"THE CORNISH" ROCK DRILL and "THE CORNISH" COMPRESSOR.



RECORD OF WORK DONE

At Botallack Mine, St. Just, Cornwall, **TWELVE MEN** with **TWO** new Patent **CORNISH ROCK DRILLS** drove, sunk, and rose **288 FATHOMS** in **12 MONTHS**, equal to five times the Speed of Hand Labour

At Wheal Grenville Mine, Camborne, Cornwall, **SIX MEN** with **TWO** new Patent **CORNISH ROCK DRILLS** started from the **150 FATHOMS** level and put up in **EIGHT MONTHS** a **11 FEET** by **5 FEET PERPENDICULAR RISE 46 FATHOMS 5 FEET 6 INCHES**, and about midway drove **FATHOM 5 FT.** No communication of any kind was effected until holing to the Shaft brought down from surface.

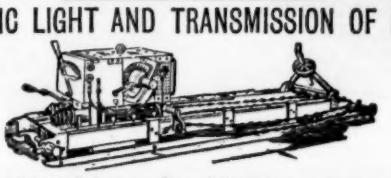
Estimates for ROCK BORING PLANT and GENERAL MINING MACHINERY on Application.

London Offices: 7 and 9, LEADENHALL BUILDINGS, E.C.

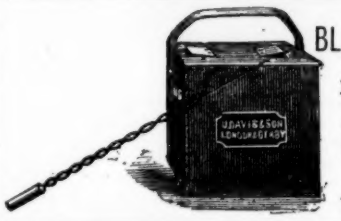
JOHN DAVIS & SON,

ALL SAINTS WORKS, DERBY;
118, NEWGATE STREET, LONDON, E.C.
CARDIFF, JOHANNESBURG, CALCUTTA.

ELECTRIC LIGHT AND TRANSMISSION OF POWER.



Jeffrey Machines for Undercutting Coal,
WORKED EITHER BY COMPRESSED AIR OR ELECTRICITY.
OVER 600 IN DAILY USE.



ELECTRIC
BLASTING APPARATUS.
HIGH OR LOW TENSION
EXPLODERS
CABLES, FUSES.

Electric Signals
and
Telephones.

MINING AND
SURVEYING INSTRUMENTS,
THEODOLITES, HEDLEY
DIALS, LEVELS,
CLINOMETERS.

MINERS' SAFETY LAMPS.
ALL PARTS INTERCHANGEABLE.

CATALOGUES UPON APPLICATION.
SEC. A. MATHEMATICAL & MINING INSTRUMENTS, MINERS' LAMPS, &c
SEC. B. ELECTRICAL PLANT AND STORES.

THE AUSTRALIAN MINING STANDARD
IS THE
ONLY RECORD OF MINING, FINANCIAL, and ENGINEERING PROGRESS IN THE SOUTHERN HEMISPHERE.
PUBLISHED WEEKLY. ILLUSTRATED.
Subscription, 30*s.* per annum (payable in advance).
Dr. E. D. PETERS, Jun., says:—"*The Mining Standard* is the best Mining Journal in the World, save one."
THE AUSTRALIAN MINING STANDARD COMPANY, LIMITED.
Printers and Publishers,
SYDNEY AND MELBOURNE.

AWARDS: CRYSTAL PALACE, 1890; TASMANIA, 1891; KIMBERLEY, 1892.

CONCENTRATION.

The Clarkson-Stanfield Ore Reduction Co. (Limited).

In the CLARKSON-STANFIELD process of Concentrating Refractory and Complex Ores no water is required; dust is reduced to a minimum; the loss of Mineral through water-borne Slimes is obviated.

OUTPUT ½ TO 2 TONS PER HOUR, ACCORDING TO SIZE OF MACHINE.

CONCENTRATOR TO BE SEEN IN OPERATION AT THE COMPANY'S ONLY ADDRESS,

6, COLONIAL AVENUE, MINORIES, LONDON, E.

The Machine is superior to Sieves for Sizing Homogeneous Substances, such as Emery, Sand, and Powders, and may be used to great advantage in the preparation of Ochre.

N.B.—The owners of the Carndochan Mine, near Bala, North Wales, will, by arrangement, show their CLARKSON-STANFIELD plant working on a Refractory Low Grade Gold Ore.

NEW PATENTS.

LIST of APPLICATIONS for New Patents relating to Mining Metallurgical, Engineering, Railway and kindred matters, specially compiled from official sources for the "Mining Journal" by Messrs Rayner and Company, Patent Agents, 27, Chancery Lane, London, W.C., who will forward all information regarding them free on application.

19681 John Steel Dixon Shanks and John MyCarmick, 91, King Street, Belfast.—Improvements in furnaces of steam boilers.
19911 John McLaren and Henry McLaren, Midland Engine Works, Leeds.—Improvements in governors for steam engines and other purposes.
19917 Frank Carey Yeo and John Arthur Ash Yeo, 31, Southampton Buildings, Chancery Lane, London.—Improvements in or relating to grates or furnaces of steam generators.
19937 Charles William Gauntlett and John William Hinton, 24, somers Road, Southsea.—Improvements in steam boiler water indicators.
19987 Jan Von Grabinski, 163, Queen Victoria Street, London.—Apparatus for purifying and heating feed-water for steam generators.
19994 Peter Houston, John Alston, and John Dick Murray, 121, West George Street, Glasgow.—Improvements in steam boilers.
19995 Alexander Gustav Guido Taulis, 76, Chancery Lane, London.—A new or improved motor power engine.
19999 Louis Ernest Fraipont, 6, Lord Street, Liverpool.—Improvements in or connected with smoke consuming hydro-carbon furnaces.
19992 George Cooper and Samson Fox, 46, Lincoln's Inn Fields, London.—Improvements in steam boiler furnaces or flues.
19970 Henry Turner and William Allen, 8, Quality Court, Chancery Lane, London.—Improvements in or applicable to smoke burning apparatus.
17936 Julius Bosquet, Hazel Bank, Gourock, Scotland.—Adaptation of water tubes in the furnaces and fire boxes of the multitubular boilers.
19812 Thomas Mason, 73, Clun Road, Sheffield.—Improved apparatus for consuming smoke and economising fuel in steam boilers and the like.
19987 James Samuel Kingston, 1, Douro Villas, Snake Lane, Woodford, Essex.—An improved hot water or steam boiler.
20021 William Morgan, Lloyd's Bank Buildings, Bristol.—Improvements relating to winding and hauling engines.
20113 Joseph Southall, Woodleigh Salborne Road, Worcester.—Improved oil engine and gear for driving axles or shafts.
20118 Benjamin Draper, William Bayliff, and Thomas Dutton Bayliff 15, Water Street, Liverpool.—Improvements in or connected with automatic stop mechanisms of machinery.
20191 Arthur Cryer and Henry Baker, 22, Southampton Buildings, Chancery Lane, London.—An improved rotary valve for steam and other engines.

COMPLETE SPECIFICATIONS ACCEPTED.

The following will be published on October 3:—
13072 Rainey.—Dry concentrators for the treatment of ores.
17014 Cottrell and Healey.—Automatic valves.
17057 Taylor.—Air compressing engines and other similar engines.
17140 Lewis and Geistharp.—Separation or extraction of copper, zinc, lead, silver, gold, and other metals from ores or compounds containing the same, and to the recovery of chlorine used in the treatment of such ores or compounds.
19021 Mackay.—Drying air for the blast furnace and other purposes therefor.
19044 Churchill.—Fluid controlling arrangements of multiple cylinder engines.
317 9 Schmidt.—Flame tube boilers.
21430 Siemens Brothers and Co. (Limited).—Electrical apparatus for firing fuses for mines and other purposes.
19949 Otes.—Water tube boilers.
19957 Meese and The Rosenwerk (worm, Nagel and Kaemp) Actien Gesellschaft.—Mills or apparatus for grinding or crushing hard substances.

JOINT-STOCK COMPANIES.

NEW REGISTRATIONS.

THE following are among the joint-stock companies registered at Somerset House since our last notice:—

London and Colonial Exploration and Finance Company (Limited).—Registered September 16 by H. P. Bosher, 26, Bedford Row, W.C., with a capital of £150,000 in £1 shares. Objects: To institute, enter into, carry on, assist or participate in financial, commercial, mercantile, industrial, manufacturing and other businesses, works, contracts, and undertakings, and financial operations of all kinds; and further to prospect, explore, develop, and work lands, mines, minerals, ores, mining rights, and claims in any part of the world. Registered office, 8, Wool Exchange, E.C.

Desirable Proprietary Gold Mines (W.A.), Limited.—Registered September 15 by Davidson and Morriss, 40-42, Queen Victoria Street, E.C., with a capital of £250,000 in £1 shares, to prospect, explore, develop, and work lands mines, minerals, ores, mining rights, and claims in any part of the world; and to carry on the business of a mining, milling, smelting, and metallurgical company in all or any of its branches.

Bendigo Gold Fields (Limited).—Registered September 18 by E. S. Parker, Finsbury House, Bloomfield Street, E.C. Capital £100,000, in £1 shares, to institute, enter into, carry on, assist or participate in financial, commercial, mercantile, industrial, manufacturing and other businesses, works, contracts and undertakings and financial operations of all kinds; and further to prospect, explore, develop and work lands, mines, minerals, ores, mining rights and claims in any part of the world, &c.; and to carry on the business of a mining, milling, smelting and metallurgical company in all or any of its branches. Registered office, Finsbury House, E.C.

B. C. Minerals (Limited).—Registered September 16. Capital £10,000, in 1s. shares. Objects: To acquire any mines, mining rights, &c., in any part of the world, and to develop, work, deal with and turn to account the same.

B. C. Towns Properties (Limited).—Registered September 16. Capital £10,000, in 1s. shares. Objects: To acquire any mines, mining rights, &c., in any part of the world, and to carry on the general business of a mining, milling, smelting and metallurgical company.

Champion Extended and Home Rule Gold Mines (Limited).—Registered September 12 by Morton, Cutler and Co., 99, Newgate Street, E.C. (Capital £150,000 in £1 shares), to adopt and carry into effect an agreement expressed to be made between A. E. E Rushall of the first part and this company of the other part, for the acquisition by purchase or otherwise of certain mining leases or claims situate at Nannine, Murchison District, Western Australia, and to develop, deal with, work, and turn to account the same.

New Zealand Jubilee Gold Mine (Limited).—Registered September 14 by Hepburn, Son, and Cutcliffe, Bird-in-Hand Court, Cheapside, E.C., with a capital of £125,000 in £1 shares, to adopt and carry into effect certain agreements for the acquisition, by purchase or otherwise as a going concern, of the business, property, and undertaking of the New Zealand Jubilee Gold Mine, Limited (the old company incorporated January 18, 1895).

British Australian Explorers.—Registered September 15 by Campion and Simmons, 23, Old Broad Street, E.C., with a capital of £100,000, in 1s. shares, to adopt and carry into effect a certain undetailed agreement: generally to search for, prospect, examine, and explore mines and lands supposed to contain minerals or precious stones, and to search for and obtain information in regard to mines, mining districts, and localities, and to employ agents for all or any of these purposes, either permanently or temporarily; to carry on the business of a water works company in all its branches in West Australia or elsewhere.

Golden Leases Mining Company (Limited).—Registered September 17 by Morton, Cutler and Co., 99, Newgate Street, E.C., with a capital of £120,000 in £1 shares, to acquire certain mines, mining rights, &c., in Coolgardie, Western Australia, and to develop, deal with, work, and turn to account the same.

CONTRACTS OPEN:

FOR MINE, QUARRY, RAILWAY, AND ENGINEERING WORK, STORES, &c.

**** We shall be obliged by being promptly placed in possession of particulars regarding contracts open for competition, and of the results of successful tenders. In the latter case contract prices should be given.*

The date given is that by which tenders must be delivered, in nearly all cases further information can be obtained on application at the addresses given. In applying for such the name of "The Mining Journal" should be mentioned as the original source of the information, concerning which further particulars are required.

Stores, September 30 (*Brussels*).—For the supply to the Belgian State Railways of a very large quantity of railway stores (metal fittings and parts), 19 lots in all; also Vignolles rails, &c. Particulars at the Brussels House.

Coal and Coke, September 30 (*Wimborne*).—For supply of coal and coke (broken), delivered at their schools and teachers' houses for one year, for the Kinson (U.D.) School Board. Usual quantity consumed: coal, 15 tons; coke, 30 tons. Sealed tenders to be sent to Mr. H. W. Dibben, clerk, Wimborne.

Railway Construction October 1 (*Hunslet, Leeds*).—For the works required to be undertaken in the construction of the Hunslet railways, Leeds, about four miles in length, with goods station and warehouse, for the Great Northern Railway Company. The plans, sections, and detail drawings may be seen on and after September 7, at the offices of Mr. W. B. Myers-Beswick, civil engineer, 31, Park Square, Leeds, where also copies of specification and forms of tender may be obtained.

Metal for Rolling Stock, October 1 (*Vienna*).—For the supply to the Austrian State Railways of about 500 tons sheet iron, 55 tons Martin steel, 100 tons sheet copper for fire boxes, 150 tons iron and steel boiler tubes, about 700 tons of steel axles, and a very large quantity of steel tyres, &c. Application should be made to the office of the Austian State Railways at Vienna.

Coal, October 2 (*Cairo*).—For the supply of 2400 tons of Newcastle bunker coal, and 150 tons of foundry coke, for the Administration of the Khedivial Mail Steamboats. Delivery at the rate of 300 tons per day at the Alexandria Arsenal. Tenders on stamped paper, and a security required.

Iron Bridge, October 3 (*Breslau*).—For the supply and erection of the ironwork for the Rosenthal ship canal bridge. Particulars are obtainable for 1·50 marks (1s. 6d.) from the Koniglichen Wasserbauamt, Lehmdamm, 70 I, Breslau.

Railway Lamps, October 3 (*Lisbon*).—For the supply of stores and parts in connection with lamps and lighting, for the Royal Portuguese Railway Company. Application to the Chief of the Stores Department at Santa Apolonia Station, Lisbon, and particulars also obtainable at the Paris office, rue de Châteaudun 28.

Pumps, October 5 (*London, E.C.*).—For the supply of duplex pumps with boilers, for the Bengal and North-Western Railway Company (Limited) Specification, form of tender, and general conditions of contract, may be obtained on payment of 10s. (no part of which will in any case be returned) by application at the company's offices. Mr. E. L. Marryat, Secretary, 237, Gresham House Old Broad Street, London, E.C.

Goods Trucks, October 7 (*Christiania*).—For the supply of 18 open railway goods wagons, normal gauge. Applications to the office of the Norwegian State Railways, Christiania.

Coal, October 7 (*Holland*).—For the supply of coal for four steam engines in connection with the Zuid-Willems Canal. Application to the Provincial Administration, Assen.

Pier, October 12 (*Marsala*).—For lengthening the western breakwater of the harbour at Marsala, Sicily (about £11,610). Particulars at the Italian Ministry of Public Works at Rome, or at the Prefecture at Trapani, Sicily.

IMPROVED MULTIPLE WEDGES.

THE wedge shown in section in the accompanying illustration forms one of the specialities placed on the market by the Hardy Patent Pick Company (Limited), Sheffield, for use as a substitute for explosives, where the introduction of the latter is considered dangerous. It is designed as an improvement on the old plug and feather wedge, the feather, as will be seen, being divided into two parts, which may be driven up alternately and separately, so that with the same driving force the expansive power obtainable is practically doubled; and, when necessary, in cases of extreme stubbornness of material, a third wedge may be inserted and driven with equal ease. The necessary diameter of bore is considerably reduced, and the saving of slack over that brought down by explosives is found to

average about 15 per cent. The wedges are made in sizes varying from 1 foot 6 inches long by 1¼ inch diameter to 4 feet long by 2 inches diameter, the holes necessary for their reception being ⅛ of an inch larger diameter.

The company is prepared to make free trials of the wedges under any conditions with suitable boring machines, the figures given below having been taken from actual every day experiments in the ordinary working of the mines. The comparative tables show the average results of 40 experiments carried out under precisely similar circumstances in the Parkgate Seam at Wharncliffe Silkstone Colliery. Averages:—

	Weight displaced.	Time per ton.	Cost per ton.
Wedges	6½ tons	11	7·83 l.
Gunpowder ..	6 tons 12 cwts.	7	9 83d.

or a reduction in cost at the pit mouth of 2d. per ton.

At Clydach Vale, with a rocky bind roof and a 14 feet roadway, 4 yards ahead were ripped 14 feet wide and 2 feet thick in 5½ hours including squaring and plucking the roof, and a further 3 yards ahead 14 feet wide were brought down in 2 hours.

The following figures are taken from a large number of tests forwarded from the Continent:—

Name of Colliery.	Nature of rock bored.	Time to drill to bore and wedge	Size of rock wedged.	Weight.
		Min.		Tons.
Compagnie des Charbonnages, Belgium	Ordinary roof ripping	32	6ft. 6in. by 3ft. 3in. by 1ft. 6in.	3
Compagnie des Mines de Marles, France.....	Coal	22	10 ft. by 4 ft. by 3 ft. 3 in.	3½
Hardin Pit, France	Hard grit floor	70	5 ft. by 4 ft. by 2 ft. 4 in.	2½
Compagnie des Mns.de Douchy France	Ordinary floor ripping	32	5 ft. by 5 ft. by 2 ft. 4 in.	3
Compagnie des Mns des Dourges France	Roof ripping	15	9ft. 9in. by 3ft. 6in. by 1ft. 10in	3

It will be admitted that such results are highly satisfactory, and that even in cases where explosives are admitted, such a system, combining as it evidently does, absolute safety with considerable economy in working, is worthy of the consideration of all mining experts.

THE METALLURGY OF GOLD.

PATENTS OF 1896, WITH NOTES.

By Captain C. C. LONGRIDGE, M.F.I.M.E., A.I.C.E., &c.

AMONG the English Patents, Nos. 1 to 16,252, published during the present year, the following are such as refer to the treatment of auriferous ores. In each case the first paragraph contains a description of the patent; the second adds such notes as the writer trusts may be of some practical value.

Patent No. 3132.—Applied for February 11. Accepted April 18. Patentee, John Roger.

The invention is to provide an ore crusher comprised of two rolls arranged one above the other, one of which has a free vertical movement with respect to the other, and by its own weight crushes the ore. Furthermore, to provide means for checking or limiting the upward movement of the roll, and serve to exert a downward pressure on the said roll.

There are certain mechanical difficulties in an efficient arrangement of this kind, and it is doubtful whether the gain is worth the additional complication.

Patent No. 3984.—Applied for February 21. Accepted March 21. Patentee Victor, Isidore Feeny.

This is an apparatus for concentrating and saving gold sulphurets and other valuable heavy metals and particles. It consists essentially of a stationary base, carrying an intermediate hinged frame on which rests a movable table, supplied with an endless travelling belt passing around drums or rollers at opposite ends of the table. Means are provided for oscillating the table longitudinally and from side to side, and means for gradually advancing the belt in the direction of its length. It also comprises mechanism for raising and lowering the end of the table, so as to regulate the incline or grade of the belt to suit the work which is being performed, and means for distributing the pulverised ore upon the belt with sufficient water to separate the gangue from the valuable heavy portions, the lighter material being carried off over the lower end of the belt, while the heavier is carried up and delivered over the end where it may be collected.

Apparently a serviceable concentrator of the travelling or revolving belt type. The ease with which the grade can be adjusted is a good point. Machines of this type are essentially slime concentrators, adapted to the very finest material, either alone or mingled with coarse sand. They have a special value for treating fine sulphides without previous sizing. For coarse sulphides and coarse sand a roughened or riffle belt should be employed.

Patent No. 5907.—Applied for March 17. Accepted May 16. Patentee, Frank A. Huntington,

This patent relates to that class of mills in which the crushing bed of the pan is inclined, and the crushing roller is mounted on an axis parallel with the plane of the crushing bed, and is movable to and from the said bed in a plane at right angles thereto. For better distribution of the ore and prevention of undue wear of the bed at the point of feed, the ore is fed into the mill from a hopper mounted on a driver and provided with one or more chutes.

An improvement on the ordinary Huntington mill, whereby gravity is brought to the aid of centrifugal force in keeping the rollers on to the crushing surface. It is, however, possible that the splash, and, therefore, the discharge, may not be quite so effective as in the usual type. The improved feeder is calculated to avoid uneven wear of the bed. Mills of this kind are particularly adapted to brittle sulphide ore, soft friable ore, argillaceous quartz, and for regrinding tailings; but they are rapidly corroded by acid water derived from mines or from decomposing pyritic ores. They require intelligent supervision to avoid over-feeding and excess of water.

Patent No. 6242.—Applied for March 20. Accepted May 9. Patentee, Joseph Mait.

A machine for settling and saving gold from lighter worthless gangue. It consists of an inclined table, having grooves or depressions made transversely at intervals between the upper and lower end of the table; of mechanism by which the table is oscillated from side to side, and at the same time given a vertical bumping movement; and of stationary blades or spoons supported above the depressions and dipping into them, so as to mix or agitate the material as it flows through.

The apparatus does not appear to possess distinctive advantages over the ordinary percussion table, nor does it avoid the danger common to this type of concentrators—namely, that the inertia of the fine particles of heavy mineral may be insufficient to move against the current, and in consequence may be carried down and lost in the tailings. Percussion tables generally are very effective for separating coarse and poor pyrites. Where the pyrites is rich, so that close saving is essential, some form of travelling belt, although more costly, should be employed.

Patent No. 6337.—Applied for March 21. Accepted May 2. Patentee, Frank John Woods.

The invention relates to the concentrating of gold-bearing dirt by a dry process. The machine consists of an inclined riffle box provided with a riffle screen, a vibrating bellows arranged below such screen, and adapted to furnish a current of air to separate the materials; further, a disintegrator formed of at least two rotating shafts having intermeshing beaters adapted to disintegrate the material and feed it forward in uniform condition and quantities into the riffle box; also of flat metallic springs to flexibly support the riffle box and suspending parts; and of means for actuating the bellows, for imparting a jigging or vibratory motion to the riffle box, and for operating the mechanism.

The principle of Woods' Dry Placer Miner is separation by jigging, with an ascending air blast. The addition of the disintegrator is a distinctive feature. This enables slightly damp dirt to be treated, as it is fed from the disintegrator directly on to the screen without exposing it to the risk of subsequent caking. In the absence of water, the machine is likely to do good service with dry or slightly damp gravel, &c., provided the gold is coarse, but with fine gold there is probably a heavy loss.

Patent No. 9560.—Applied for May 5. Accepted August 8. Patentee, Arthur Harvey Wethey.

A patent for calcining furnaces, constructed in two parallel rows with superimposed hearths, and arranged in such manner that the plough stirrers and like devices for agitating and moving the material on the hearths are actuated and carried forward by machinery located outside the hearths. The roasting compartments are built one above the other, and connected in such manner as to form a continuous chamber for the passage of the ore and the heat, the latter travelling in an opposite direction to the movement of the ore. The stirring and conveying device consists of an endless travelling chain, having its several runs passing longitudinally outside the said compartments. A continuous longitudinal slot is provided for the travel of the apparatus.

This is a furnace of the shelf type, with rabbling similar to that introduced in the improved Allen O'Harra calciner. The weakest point of this type of furnace is the heavy repair bill, due to the wear and tear of the gear and rabbles. Unless carefully built, the continuous slot is apt to become obstructed by the sagging of the material.

Patent No. 10,097.—Applied for May 12. Accepted June 27. Patentee, John Jones.

A process for treating auriferous antimony ores. The pulverised ore is subjected to the action of hydrochloric acid, heat, and agitation by mechanical stirring being added. The solution, charged with antimony, is then run off, and the metal recovered electrolytically or otherwise.

For this process only the strongest acid would be effective; and as the chemical reaction ($Sb_2S_3 + 6HCl = 2SbCl_3 + 3H_2S$) shows that a large quantity of acid, say roughly, 1 ton of solution to 1 ton of 30 per cent. ore would be required; this, added to the cost of recovering the metal from the solution would be a very serious item. There might also be some difficulty in dealing with the copious fumes of hydro-sulphuric acid. Presumably the ore is afterwards washed and treated as free milling. The process is not likely to become general.

Patent No. 15,682.—Applied for July 15. Accepted August 22. Patentee, Benjamin Thomas Lacy.

A mechanical calciner of the class in which travelling rabbles are used for stirring and advancing the ore. Beneath the furnace is an open chamber within which one or more four-wheeled trucks are adapted to travel. From each truck an arm extends upwards through a slot in the hearth, and at its upper end carries a cross bar from which the rabbles project. The runs for the trucks are continued exterior to the furnace at each end, and pass round in a curve so as to return parallel with the furnace and exterior to it. The cars are moved by a cable. Whenever a truck enters the furnace a fresh supply of ore is automatically fed on to the hearth.

A fairly satisfactory device for lessening the wear of the gear and rabbles, and for providing automatic feed; but there are likely to be inconvenient bending and twisting strains on the truck arms and cross bars.

MESSRS. GANE, JACKSON, and JEFFERYS, chartered accountants, inform us that they have admitted into partnership Mr. Edward Wells, A.C.A., who has been with them for many years past. The name of the firm will henceforth be Gane, Jackson, Jefferys, and Wells, and their offices have been removed from 53, Coleman-street, to more commodious offices at 66, Coleman-street, E.C.

PIG IRON IN SILESIA.—The returns which have lately been issued show that during July last 52,362 tons of pig iron were produced from the blast furnaces in Upper Silesia, as against only 44,853 tons in July last year. The output in this district during the first seven months of the year is returned at 353,107 tons, as compared with 301,181 tons in the corresponding period of 1895.

THE *Gaiki*, the second of the three new steamers being built for the Union Steamship Company (Limited), by Messrs. Harland and Wolff, of Belfast, for the South African Trade, was launched on Tuesday, the 22nd inst. The *Gaiki*, like the *Gascon*, which was launched last month, is of over 6000 tons gross measurement, and will be propelled by twin screws driven by triple-expansion engines. The third steamer of this class, the *Ghoorka*, will be of similar dimensions.

MINING IN VICTORIA.

A SOUTH AFRICAN EXPERT'S OBSERVATIONS.

(FROM OUR OWN CORRESPONDENT.)

INTERVIEWING is not my *forte*, but happening by chance during the week to exchange salutations with three consulting mining engineers occupying exalted positions in their different spheres, who at the present time are on a visit to Victoria, I could not refrain from asking their confidence in being allowed to express in my notes the many allusions to the topics discussed. Without repeating each question I proposed, I perhaps rather provokingly investigated some matters which are worth being looked into a little. My first interview was with Mr. S. Franklin Day, a gentleman I have mentioned before in my letters, but whom I had not met until this occasion. Mr Day is one of a firm of large mine owners in the Kimberley district (South Africa), and came to Victoria some time back to see what opportunities there were for erecting large cyanide works for treating quartz tailings. During his stay he has visited in turn all the mining centres. In reply to my query as to the future of the cyanide process in this colony, Mr. Day, with rather a cynical smile, thought we did not understand the position. We were given to talk too much about the Rand as though the conditions were similar when the opposite was the case. In the latter country, he observed, the metallurgist had to deal with enormous bodies of low grade free milling ore, containing fine flaky gold throughout the entire mass. In Victoria the gold-bearing veins occupied a very small portion of the mass of the ore; the gold was coarser and confined to very rich but sharp shoots, invariably containing sulphurets, rich in gold, which in practice no cyanide process could save, for the want of being cheap and expeditious in extracting it.

Mr. Day remarked that he had made some hundreds of tests from the different tailing heaps scattered over the old gold fields, and although he was returning to Victoria in the course of a few months to complete his inspection, up to the present he felt very cautious in expressing any decided opinion as to their value. In quite a number of instances they proved too poor to admit of their being treated, and others again on account of the pyrites and coarse gold presented conditions which could be operated upon more favourably by triturators.

Mr. Day said he was very disappointed with a great deal in connection with mining in the colony. The South African people had nothing to learn from observing our methods of working. He stigmatised much of what he had seen as "burrowing," not mining. He had seen more amateur or immature mining in one day in Victoria than he had all the years of his residence in Africa. We had five head batteries where we should have 60 at work, and *vice versa*. We did not understand large working capitals such as they had at the Cape. What caused him more surprise than anything in our methods of working was that economy was carried to a point as to impair efficiency. He ridiculed our system of working mine managers. We could not expect economical mining or great enterprise being carried out under the prevailing system of employing managers at £3 per week. Men who had to take their coats off, and not only supervise but work above and below ground, and take charge of the battery as well. Such miserable salaries as he found were being paid in Victoria would not attract mine managers of skill and competency to the colony. Under such management shareholders might as well pitch their money into the sea for any prospect they may have of seeing dividends. It was not only a cheap and nasty system, but in the end absolutely dear and wasteful. Mr. Day ran over a list of names of mine managers, and the salaries they received on the Rand and at Kimberley, and simply laughed at the idea of these men ever finding their way to Victoria. Our penny and threepenny call system under the small subscribed capital which most Victorian companies work with would not pay a week's wages to a Cape manager, much less carry on mining operations. Mr. Day observed it was not so much that gold-saving processes were required in the colony, as an altogether different system of working, or, rather, management. Referring to free milling ore, he stated that most of the gold in the tailings he tested could be saved if the amalgamating capacity of the batteries were increased; and then, again, a great deal of the quartz was not crushed fine enough to liberate the fine particles of gold. Many of the working managers had not the skill to understand that different kinds of quartz required different treatment. It was perfect folly to pulverise certain kinds of white quartz with coarse gold to a pulp, whilst on the other hand it was necessary to finely grind the blue coloured quartz carrying fine gold, in order to set it free, otherwise the quicksilver would not touch and retain the fine particles. With more perfect amalgamation, and better concentrating plants, Mr. Day argued we should hear less about the great fortunes waiting to be reaped by more generally adopting the cyanide process, which had a very limited application to Victoria. Turning the conversation I said, "I heard you had visited the new find on the Victorian Mount Morgan field. What do you think of it." Cautiously, he replied, "I do not know; it requires more development to say anything positive. There were hopes of great things. It was in the centre of the greatest gold-bearing belt in the colony, and almost unnecessary to say its resources were undiscovered." On saying good-bye, he said, "Yes, I am leaving for the Cape to-morrow; I shall be returning in a few months. Gippsland is the coming field. There are far too many mines in Victoria for the capital that is invested. With English-owned companies, your people will have to become accustomed to larger working capitals; and let me say this to you in particular, warn the English people not to attempt to manage these mines from London; the practical control should be in Melbourne, where they were in touch with the work. I have seen scores of failures at the Cape through such folly. I am confident there is to be a great revival in the early future in Victoria, and were I in your position, I would say to the people here and in England—limit your energies to Gippsland, and you will never regret it." These are the facts. In the sharp interchange of opinions, often the same answer was given—"I do not know," but it was expressed in such a confident way that modesty more than want of knowledge brought forth this response. In referring to certain people in the community, Mr. Day spoke with a tinge of sarcasm and bitterness, things were altogether run on too "swift" lines, it would require all the astuteness of London financiers to get even with it, and then he thought London would come out the worst. Only independent reports on the mine that were being sent home would save the colony from a scandal and England from being robbed. It was most important that the English public should be in a position to obtain practical and reliable information as to the prospects of the mines in Victoria. Reviewing these notes, I heartily endorse Mr. Day's horoscope of our position. He has pointed at some weaks spots, and sounded a note of warning. If neglected, English capitalists need not blame *The Mining Journal* hereafter. They will not have to seek for the true cause of disaster in that tiresome excuse—the chances of mining, but in the inherent surroundings recorded

here, and which lies with a heavy weight upon the reputation and integrity of gold mining in this colony.

The Sulphur Deposits at the Antipodes.

Next in importance to note are a few jottings which I am privileged to make, obtained in an interview with Signori Floristella and Gervis, who are passing through Melbourne *en route* to Naples, after a tour through America, Japan, New Zealand, and the Pacific Islands, visiting the sulphur mines and deposits in these localities. These gentlemen, who are mining engineers and metallurgists of eminence in their own country, left Sicily early last year at the instance of an association of mine owners connected with the Sicilian sulphur industry. While disposed to be communicative in a broad chat, they gave me to understand their visits abroad were purely of a confidential nature, and asked to be excused from talking on matters which would come within the scope of their report, which doubtless would be made public. Notwithstanding their reservedness, it was imparted to me that the condition of the Sicilian sulphur industry had been for a long time in a precarious condition, that despite the fact Sicily produced nearly four-fifths of the world's output of sulphur, and up to within the last few years had practically a monopoly of the article, prices had fallen to about one-third of what it was a few years ago, due chiefly to the competition of mine owners amongst themselves. That when these Commissioners left Sicily last year there was an exceedingly heavy stock of sulphur in the stores, and many mines had been compelled to cease operations, with the result that thousands of men were thrown out of work. As a remedy the owners were demanding from the Government a reduction of the taxes, the abolition of the export duty, and the adoption of the warehouse system to enable owners to carry stocks for a longer period till prices were favourable. Connected with all this, a further check was proposed on the falling tendency of the market by placing the control of the Sicilian production in the hands of a trust. The names of the Messrs. Chance Brothers, discoverers of the Chance process for the manufacture of recovered sulphur, and the old-established financial firm of Oppenheim, of Cologne, and other large distributors and manufacturers were mentioned as parties to a powerful Anglo-Sicilian trust. But before committing themselves to any scheme of this sort it was desirable to possess exact knowledge of the sulphur resources in other parts. The Commissioners first visited the sulphur mines at Cove Creek, Utah, and some recent discoveries at Lousiana and California. Crossing to Japan from 'Frisco they visited all the mines on the island of Hokkaido, which are chiefly controlled by one firm, the Mitsio Company, the export trade being also in the hands of one European firm, Messrs. Howell and Co., at Hakodate. The old deposits discovered in Japan similar to those of Sicily are unimportant. The trade which has hitherto been carried on between Japan and San Francisco and New York is a declining one. The principal deposits were nearly exhausted, and that in all probability in a few years, unless large old deposits are discovered in the meantime, Japan will have to import sulphur, and again the high first cost of the article laid down at Hakodate precluded all possibility of competing with the Sicilian product. They had nothing to fear from Japan. Visiting Lake Lino in the North Celebes, and some deposits in Java on the way down to Australia, afterwards visiting White Island, New Zealand, thence visiting the Tonga group, and across to Vanua Lava in the Bank's group, and Tanna in the New Hebrides, returning to Australia by way of New Caledonia. They describe the deposits in the Pacific Islands, especially on Vanua Lava, as being little less than mountains of sulphur, in many cases about 90 per cent. pure. All that was necessary to do was to shovel the sulphur into sacks and ship it to market. While they were not afraid of Japan in the least, and the present small output of the Utah and Lousiana mines, which were hardly anything more than in an experimental stage, not disturbing the enormous exports of Sicilian sulphur to the United States, they were disposed to regard the Pacific Islands deposits as being of more than ordinary importance, and likely to become a formidable competitor in Europe and America in any substantial rise in the price of the Sicilian article. The island deposits, with the exception of White Island, had not as yet been exploited, but it was absolutely sure that in the formation of any European trust, it could not afford to treat these with indifference. Messrs. Floristella and Gervis confessed their surprise at such vast stores of mineral wealth lying dormant and neglected almost at our door. They realised the fact that it was only a question of a very short time but what some adventurous spirit would throw these enormous deposits on the market, and awaken the attention of the industrial world and the enterprise of other lands. Knowing how an attempt to create a monopoly in nickel had killed New Caledonia and closed her mines, I briefly ran over some incidents connected with the affair. Intimately associated with all that passed in the nickel combination, I have a lively knowledge of the unfortunate consequences which befel those mine owners who installed themselves into the ring, and who found it impossible to liberate themselves from it afterwards, when disaster was impending. The crash came, and all went under together. I took a hand in the deal, and look back with sorrow on the business. The combination of the New Caledonia nickel mines offer an object lesson to the proposed Anglo-Sicilian sulphur monopoly. It aims at an impossibility.

Bendigo Gold Return.

The amount of gold purchased by the Bendigo banks for the month of July, according to the sub-treasurer's (Mr. B. Berry) return, was 16,276 ounces 3 dwts., against 13,822 ounces 13 dwts. in July, 1895, an increase of 2453 ounces 5 dwts.

The following were the monthly purchases for July for the past five years:—

1892.	1893.	1894.	1895.	1896.
Ounces.	Ounces.	Ounces.	Ounces.	Ounces.
20,620 ..	21,846 ..	13,492 ..	13,822 ..	16,276

THE OUTPUT OF THE KOOTENAY MINES.—From official figures published in British Columbia it appears that the output of the Kootenay Mines (so far as it went direct to the south to the United States) for the year ending June 30 consisted of 30,673 ounces of gold, valued at $552,135; 1,459,629 ounces of silver, $969,215; 1164 tons of copper, $129,250; and 6020 tons of lead, $220,849. The detailed statistics show that the gold output rose from 6942 ounces in the first quarter to 12,280 in the second (ending December 31), and then fell to 5702 and 5749 in the third and fourth quarters. The other metals fluctuated in a different way, copper reaching its maximum in the fourth quarter and the other two in the third. The provincial mineralogist of British Columbia, in a bulletin on the Trail Creek district, dated August 8, describes the effect of this Canadian "boom" on the American districts adjoining. "Not only," he says, "is the bulk of this ore being shipped to the south, but the large proportion of the fast increasing demand for mine and mercantile supplies is being satisfied by the cities on the other side of the border, with the result that a great revival in their business affairs has followed the opening up of these good markets in British Columbia, greatly due to the fact that orders can be now more promptly filled and forwarded from this source, this advantage more than counterbalancing the customs duties that are imposed upon imports." Even the machinery ordered from Eastern Canada reaches the Kootenay largely over American railways.

GOLD MINING IN BRITISH COLUMBIA.

THE TRAIL CREEK MINING DISTRICT.

(*Continued from page* 1194.)

The Ore Deposits.

MR. R. G. McCONNELL, of the Geological Survey of Canada, after a short visit in 1894, reported* the country about Rossland to be "an area of eruptive rock, mostly diorite and uralite porphyrite cut by many dykes," but as no complete geological survey has yet been made, nor any reported lithological study, only a very general description can now be attempted. The main mass of all the country rock is evidently diorite, although it presents many different gradations in composition and structure, varying from a fine-grained aphanitic rock with very little horneblende at one extreme to nearly massive horneblende at the other, often showing mica and pyroxene. Much of it looks like a basic syenite, and samples have been taken for microscopical examination and later report, but the main point of interest is the fact that these ore bodies or veins traverse the diorite, although cores from the hanging and foot walls of the Le Roi shute will be examined as well as samples from either side of the Centre Star ore shute, so well defined in the cliff running up Centre Star Gulch, to ascertain whether these samples are all one class of rock or two. In going over this region the variations are seen to be very marked, in some places the rock being stratified as if of sedimentary origin, but in all probability a more or less altered eruptive. Porphyry dykes from 1 foot up to 60 and 80 feet wide traverse the country, many with a north and south strike, but with no apparent dislocation of the veins which they cut through; indeed, at six such points of intersection the ore seemed to be concentrated, and even to follow along the dyke for some distance, but this must be made clear by further underground work. A careful geological survey will reveal very interesting facts relative to the formation of these ore deposits.

In this Rossland ore much prospect work has shown clearly that there is a large system of lines of fracture with an east by west and north-east by south-west trend, and a persistent northerly dip, along which more or less ore has concentrated, either as bodies of solid sulphides or sulphides scattered through the country rock. Some of these fissures can, apparently, be traced through several 1500 feet claims, and along them are the large ore shutes now being mined or developed, the maximum width of pay ore so far being about 35 feet, and maximum length 310 feet. Many of these fissures have been or are now being prospected, and in many instances with surface indications of the most unfavourable character; the improvement has been very marked in the increase of the amount of ore and its value, and the great probability that more rich ore shutes will be found by following these fissures has made all such property valuable, and is deciding the commencement of extensive exploratory work. Again, large shutes of low grade ore, mostly the coarse grained magnetic iron pyrites, or pyrrhotite, assaying from traces to $6 to $8 in gold, have been found, and are being explored for better grade ore, and so far with some success, but development, except on a few claims, has hardly yet begun, and, so far, only the shutes that have been exposed at the surface are being worked, and it is yet impossible to foretell how much extensive underground mining will be rewarded. Further details as to the ore bodies will be given in the description below of some of the mines.

The surface of these ore shutes is covered with the typical iron capping, or reddish brown sintery mass, and experience enables the prospector to distinguish between disintegrating sulphides and barren diorite heavily iron stained by the oxidising of the bisilicates or the iron pyrites nearly always present in this rock. Although it is difficult to prospect such rock, which may be much iron stained but with no vein whatever in the vicinity, nearly all work is done along one wall, and the ore appears to follow along one wall, where the rock is not too full of fissures that disguise true conditions, but it is doubtful if more than one wall ever really exists, although a parallelism of lines of fracture may for a short distance seem to prove the contrary. Wherever the ore is found to consist almost of pure sulphides, it will be found lying along and parallel to such a wall, after which ore is disseminated more or less through the inclosing rock, often following along small fissures that in some cases form small veins of good ore that run for a considerable distance away from the main deposit. In all the mines the ground is faulted, thus dislocating the ore deposits and stringers, and complicating the search; but these slips will be better understood as work progresses, although much development work will have to be done by driving steadily ahead along the general course of the veins and crosscutting, for the good rule of following the ore is seldom possible for any distance by reason of these dislocations.

The Ores.

The ores at Rossland, with the exceptional free milling gold quartz of the O. K. Mine, may be divided into three classes:—

(*a*) Those large deposits of coarse-grained massive pyrrhotite, locally known as the "iron ore," in which very little or no value in gold is carried.

(*b*) The ore found in many claims on the south belt, as the Lily May, Homestake, Mayflower, Curlew, Gopher, R. E. Lee, &c., in which the sulphides are not pyrrhotite but iron pyrites and marcasite (white iron), with in some of these mines much arsenopyrite, and also zinc blende and even galena, in which case the silver value exceeds the gold, and the percentage of copper is very small or nothing.

(*c*) The typical ore of the camp as sold by the Le Roi, War Eagle, Iron Mask, or Josie, is divided into first-class and second-class. The first-class consists of nearly massive fine-grained pyrrhotite and copper pyrites, sometimes with a little magnetite, or mispickel, with more or less quartz and calcite. In this class of ore, as got from the lowest workings of the Le Roi, the amount of quartz is much higher, the smelter returns giving 41 to 52·8 per cent. silica, and 20·6 to 26·8 per cent. FeO., but this is proving the best ore in the mine; the average smelter returns were on 1200 tons, 2·6 ounces of gold, 1·8 ounces of silver, and 2·5 per cent. of copper, or $33·05† net per ton, while some shipments went as high as 4·06 ounces in gold.

The second-class ore, and the bulk of the ore of the camp shipped, will be most probably of this character and value, is a diorite with a comparatively small percentege of these sulphides, but the value is still very good; 1800 tons of the Le Roi, second-class, yielded by smelter returns an average of 1·34 ounces of gold, 1·4 ounces of silver, and 1·6 per cent. copper, or $27·97* net per ton. Mr. Bellinger, of the Trail Smelter, kindly gave the average analysis of this ore to be FeO. 22 per cent., SiO_2 42·5 per cent., CaO. 7 per cent., MgO. 3 per cent., Al_2O_3 18 per cent.; copper, 1·5 per cent., S. 6 per cent.

Treatment.

The destiny of the mining operations of this part of the province will depend, to a very great extent, upon the means of transportation, and then upon the cost of metallurgical treatment, for a large amount of low grade ore is promised, and the possibility of treating such ores at a low figure to leave a fair margin of profit must attract the best endeavours of the metallurgist. The ores containing a high percentage of sulphides will be very desirable, and should command the lowest smelting charges, but in all probability the great bulk of the Trail Creek ores will be of the mixed class, or diorite with a comparatively small proportion of sulphides, and hence a low percentage of copper, while again the amount of arsenic, abundant in some of the ore, will be an important element. This ore has now been shipped to many of the American smelters, such as Tacoma and Everett, Washington, and Great Falls, West Helena, and Butte, Montana, and now much will be smelted at the new works at Trail, to be described. The erection of smelters at Rossland, in the immediate vicinity of the mines, is being seriously contemplated, but it is yet too early to make any definite statement. The cost of freight and treatment is now about $10 to $14 per ton, when 95 per cent. of the assay value of the gold and silver is paid for, and 1·3 is deducted from the percentage of copper present.

Of course the possibility of other processes being suitable to such ores is being tested, such as the cyanide and chlorination processes, and the results will be awaited with much interest, as some such process may prove very successful, and all judgments should be deferred until the conclusive experiments have been completed.

* Summary reports of the Geological Survey of Canada for 1891-1895.

† Not deducting freight and treatment charges.

The British Columbia Smelting and Refining Company.

The officers of this smelter, which is located at Trail Creek, British Columbia, are—President, F. A. Heinze; commercial manager, J. F. Lansing; superintendent, E. H. Wedekind; general superintendent of Mr. Heinze's smelters at Butte and Trail, H. C. Bellinger. On securing the large contracts for ore from the Le Roi Mines, Mr. Heinze secured the present excellent smelter site, on the bluff overlooking the Columbia at the mouth of Trail Creek, where has sprung up the town of Trail. This smelter has been erected with great rapidity in spite of inclement winter weather and great difficulty in securing supplies of building material and importing the plant and machinery; but although work was begun October 10, 1895, the first furnace was fired up in February, 1896, and now five furnaces are in full operation, with further extensive and important additions being rapidly pushed to completion, additions that should greatly improve present conditions and treble the capacity of the works. Beside that with the Le Roi, contracts have been made with the War Eagle, Iron Mask, and Crown Point. Mr. Heinze and his associates are proving their ability for prompt decisive action, not only in the construction of their smelting works and their tramway, but in the inception and inauguration of other extensive enterprises that mean much for the improvement and advance of the mining operations of this district.

As was to be expected, the ores from this new camp have offered at first some considerable difficulty in treatment, especially as the class of ore now mined is much more siliceous, and contains less copper than the earlier tests indicated, but now every furnace is working with much less trouble and up to their capacity, especially since the floods have subsided permitting the more regular supply of coal, and the smelter is now the scene of activity where, 10 months ago, were only the sand bluffs of the Columbia.

The smelter now comprises: —

The sampling mill daily capacity, 150 to 200 tons; bin capacity in the mill, 750 tons. The ore, passing through a 12 by 22 inch Blake crusher, is run through a trommel, whence the fines go to a Constant cylindrical sampler, and the over size to a 9 by 15 crusher and rolls, and then to the sampler and into the bins until the lot of ore is settled, from whence it goes to the calciners or the bins, from which it can be drawn in cars to the blast furnace. This sampler is inadequate for the amount of ore offered, and is now being enlarged so as to handle 350 to 400 tons per 24 hours.

In the roast house is one O'Hara automatic calcining furnace, with foundations laid for a second. This furnace is 120 feet long over all, amd has two 90 feet hearths, one above the other, 9 feet wide. One travelling chain passes along the centre of the hearths, carrying six plows and six trolleys or chain carriages, at the rate of about 25 to 35 feet per minute, and as yet very little repairs have been required, the chain, plows, and trolleys showing but little sign of corrosion in the furnace. Fifty tons of ore crushed to pass a ½ inch ring are roasted per day, with a loss of 70 per cent. of sulphur contents, the ore taking 12 to 14 hours to pass through the furnaces in which 10 fireplaces fired with wood supply the heat. Besides this furnace, there are in the furnace room six circular calciners, such as used in Butte, placed above the reverberatories, the ore automatically fed, passing over six horizontal revolving hearths that discharge alternately from the rim and centre upon the lower one, thence into the hoppers below that are immediately over the hearth of the reverberatory. It is designed in this furnace that when once ignited no further fuel will be needed than the sulphur, but they must run continuously, and on account of irregularity until recently, in the operation of the reverberatories, these calciners have not been used.

The dust chamber is 180 feet long, 10 by 12 feet inside, with wing walls from the sides every 10 feet, not over-lapping, but having a clear space through the chambers to the chimney, which is 140 feet high and 8½ feet square inside.

Furnace room, 60 by 310 feet, 68 feet to peak of roof. The ore is being smelted after two methods:—(*a*) In four reverberatories, hearths 14 by 22 feet, 40 tons each per 24 hours, in charges of roasted and unroasted ore, slag and limestone, are now being treated. The fuel is wood, but as this is not yet dry enough to give the required heat, coal is also being used, over 70 tons a day, from the Anthracite Coal Company's mines, on the eastern limits of the Rocky Mountains, whence it is brought over the Canadian Pacific Railroad to Revelstroke or Arrowhead, and thence in scows down the Arrow Lakes and the Columbia to the smelter, whence it is raised up an incline 160 feet by a small steam hoist with cable and car to a trestle, along which the car can be run to the shutes wherever needed in the works.

(*b*) In a 40 inch circular furnace, 12 feet high to feed floor, water jacketed, with six 3 inch tuyeres, also with fore hearth, 45 to 55 tons of raw ore are now smelted in 24 hours. As the amount of sulphur in these ores is low, and that in the pyrrhotite not available for fuel, as already it is a natural matte, a typical form of pyritic smelting cannot be used, but more or less fuel is necessary, and a very satisfactory grade of coke is got from Fairhaven, Washington, although it carries 20 to 24 per cent. ash. A small amount of limestone is added to the charge, but at present a very acidic slag, rather thick, but giving a good separation, is flowing, but very careful handling of the furnace is imperative. The analysis of this slag gives SiO_2, 42 to 46 per cent.; FeO., 12 to 19 per cent.; Al_2O_3, 14 to 19 per cent.; and MgO. 4 to 6 per cent.

A new 200 ton rectangular blast furnace, made by E. P. Allis and Co., Milwaukee, Wisconsin, after a composite design by Mr. Bellinger and Mr. Wedekind, is being quickly erected. In this furnace, 120 by 38 inches at the tuyeres, the steel water jackets will be 5½ feet high; height to feed door 14 feet, with 14 6-inch tuyers with thimbles of smaller size that can easily be put in for the purpose of experimenting with the quantity and pressure of blast, for all arrangements are to be such that tests can be made under varying conditions, to determine the greatest possible efficiency for this furnace upon this class of ore. Another feature of this furnace will be that, besides the movable forehearth, the bottom, or crucible of the furnace, will also be mounted, so that if required it can be altogether withdrawn from beneath the water jackets.

The bluff on which the smelter stands is sand, but the top and face of the dump, 120 feet high, is being covered with slag that flows in sand gutters from the reverberatories, or is wheeled out in the usual slag pots from the blast furnace; but in a short time all slag will run from the furnaces into the water troughs, be granulated, and then swept out to the dump, which will be protected from scouring out by the fag covering.

In the engine room is a 65 horse power engine, with a 40 horse power engine now on the way. A No. 5 Root blower is now used, but a No. 7 will be needed when the big blast furnace is blown in. Power is transmitted by shafting, but mostly by wire cables running over large pulleys to different parts of the works. However, steam power may soon be replaced by electricity, as a plant is to be erected at the foot of the dump, and supplied with Pelton wheels and water under a 250 foot head. On a tributory of the Columbia, not far from Trail, a very large water power has been secured by Mr Heinze, who proposes the installation of an electric plant for the distant transmission of electrical energy which may be brought to the mines, as electricity has now become so successful and economical a factor in mining elsewhere. At present 100 to 120 tons of ore per day are being brought down from Rossland by the tramway, but this amount will be greatly increased. At the smelter 140 to 160 tons, it is stated by the management (July 29), are being smelted daily, with a concentration of about 20 tons into 1 ton of matte, which matte goes to Butte to be refined; but already the foundations for a refinery at the smelter are nearly completed, in which the matte, after being crushed, will be further calcined in a

reverberatory to be constructed, and then resmelted in two of the present reverberatories, after which the product will be treated so as to yield a high grade copper matte for export, from which 80 to 90 per cent. of the gold and silver value has been separated for special refining and parting at these works.

From 175 to 200 men are now employed, and when all these improvements are completed, this smelting plant will be well equipped and capable of handling 350 to 400 tons of ore daily; and if the demand increases, a still larger plant can easily be added. Again, with the increased means of transport, and the building of roads into other mineral-producing districts, access to other classes of ore may greatly better and cheapen the process of smelting.

MINING IN THE UNITED STATES.

A 10,000 feet shaft.—$460 in dividends on an investment of 50 cents.—A force engine to develop and utilise a pressure of 500 tons per square inch.—The true inwardness of Cripple Creek.—A new and rich camp in Idaho.

(FROM OUR OWN CORRESPONDENT.)

NEW YORK CITY, SEPTEMBER 15.

GEOLOGISTS and mining engineers have always regarded our Lake Superior district with particular interest, and they are now looking in that direction more intently than ever. The Tamarac Mine is arranging to sink a shaft 10,000 feet deep. Entirely new conditions for physical observations will then exist, and it is reasonable to suppose that a crop of new knowledge will be the result. We already have some premonition of this in the facts established by the deep shafts of the Tamarack's neighbour, the famous old Calumet and Hecla. The Red Jacket shaft of that mine is now down some 4900 feet. According to the accepted scientific teaching of the day the temperature of the crust of the earth increases about 1° Fahr. for each additional 50 to 60 feet in depth starting from the zone of uniform temperature which is about 60 feet from surface, and shows about 55° Fahr. of heat. Accordingly, the temperature of the rock at the bottom of the Red Jacket shaft ought to be about 136° Fahr., just as the bottom of the famous 4196 feet bore hole near Berlin shows a temperature of 119°. But no such phenomenon is observable. In spite of geologists and their theories, the highest normal temperature yet attained in the Red Jacket shaft is 87·6° Fahr.; and as at 105 feet from surface the rock stood steadily at 59°, the total increase in sinking 4795 feet has been only 28·6°. It is little facts like this that sometimes justify the mere "practical man" in laughing at the dignified calculations of the Kelvins and Taits when they announce to a hushed world the age they permit it to have. And we are now waiting to see whether the additional 5000 feet of the Tamarac shaft will carry us once more into scientific chaos.

But, philosophy apart, the Red Jacket shaft and the mine to which it gives access are worthy of study by engineers and investors alike. The opening is 15½ by 25 feet inside of the timbering, and contains six compartments, being fully equal in working capacity to half-a-dozen mining shafts of ordinary size. The shaft is solidly timbered. The adamantine firmness of the rock renders it secure, the timbers being merely to carry the traffic of men, mineral, water, and electricity. In four compartments will glide up and down the ponderous cages carrying 10 ton loads of rock at the speed of express trains. Up and down in these cages will also ride the men who mine the rock. In one compartment will be the great iron pump pipes, and down another descends the steady current of compressed air which runs the drills a mile below the engine house. Bunched in slender cables are the copper wires which convey electricity to light the recesses of the mine. There are also slender metallic threads that afford telephonic communication from the most remote drift to any other portion of the property, for the Calumet and Hecla has a telephone exchange of its own, which in size and perfection of equipment puts to the blush the facilities of many pretentious towns, and which reaches every office on the surface, and every portion of the great mine. There are fire alarms, too, and the huge shaft house is to be built of steel. The machinery throughout is of a stupendous character. In fine, the whole undertaking is a vast and valuable object-lesson.

From the investor's point of view it is equally instructive. A good many years ago there was much talk in Boston of discoveries of native copper having been made in the Lake Superior region, and the suggestion was hazarded that they would probably be found to constitute a favourable field for the investment of capital. Some daring spirits actually incorporated a company for the purpose, with a capital consisting of 100,000 shares of the nominal value of $25 each. These shares were offered to the New England public, and went begging at 50 cents apiece. It was a "mining investment," and the shrewd Yankees, for the most part, knew better than to be taken in by anything so orthodox and transparent. The price of 50 cents at which the shares were sold showed that, in the opinion of the Boston men of business, the entire property and undertaking of the Calumet and Hecla Company was worth less than $50,000. And the average investor of moderate means held aloof, saying, "If the stock were really a 'good thing' the capitalists would be buying it up." The company struggled along. A few sensible persons gradually took the shares. The scientific men and the practical miners were in the right, and the capitalists were in the wrong. Copper was produced, profits were made, dividends were declared, and to-day the $25 shares of the Calumet and Hecla Company are selling at more than $300 each, the total dividends paid having been upwards of $46,000,000, or more than $460 per share.

Why is it that your stock holders and share dealers have allowed so excellent an investment to remain practically unknown to the British public? I was looking through a list of the Calumet and Hecla stockholders some little time since, and I found the names of your fellow countrymen to be few and far between. Those that did exist were, in almost all cases, the names of Cornish miners who had worked in the company's service, and had invested their savings in the purchase of a few shares.

I have devoted what must look like an inordinate amount of space to this subject. But it is really of exceptional importance. It serves to show that the industry which your Journal so vividly reports and illustrates from week to week is one that is sound in itself, beneficial to mankind, and, when wisely pursued, immensely profitable to its votaries. It proves also that the United States constitute a country that investors cannot afford to treat as a negligable quantity. I do not for a moment recommend investment without careful preliminary enquiry. But I cannot understand why your people persist in exploring the wildernesses of remote and barbarous countries in order to obtain so many pounds' worth of gold at a total cost of pounds alone in excess of the value, when with a fraction of the pains, time, and expense they can produce gold here on much more advantageous terms, and with far greater certainty.

Talking of the new conditions that will await scientific enquirers at the bottom of the proposed Tamarac shaft, reminds me of a startling announcement just made in the columns of the *Engineering and Mining Journal* of this city. It seems that in the laboratory of the Argentaurum Syndicate, to which I referred in your issue of August 22, there is to be employed what is called a "force engine" capable of exerting and utilising a pressure of over 500 tons per square inch. The first criticism that suggests itself is that anyone can produce such a pressure. Take a block of iron weighing 500 tons and support it on a stud having a cross sectional area of one square inch, and "there you have it!" as the showmen say. But of what material are we to make the stud? The strongest steel would crumble into powder under such a strain. And as nothing stronger than steel is available, the critic does not see how the force engine itself can be made to endure the stress it is to develop. This, however, should be but a trifling difficulty for people who gravely propose to manufacture gold from silver. I understand the inventor claims he can make his force engine even of poor, plain cast iron, if need be, notwithstanding it is to give out, in a practical manner, a thrust of over 500 tons per square inch. Nay, it is claimed that this thrust shall be received and sustained by a certain receptacle forming part of the apparatus. Well, in these days of telephones, phonographs, kinetoscopes, and argon, it won't do to pronounce a mere mechanical compressor an impossibility, and so we may well e'en let the story pass. But if it prove true, and if the force engine materialise, what a new world will be opened up for scientific research! Every physical laboratory will add one of these new machines to its equipment, and every German chemical manufacturer will be finding out new marvels of synthesis with which to astonish the market.

The great problem of Cripple Creek, to which I recently adverted, is forcing its way to the front. Will the camp continue to be a producer of phenomenally high grade ores, or will it, as depth is attained, crawl down to the level of other mining districts, and depend upon a big output and the cheap mining and reduction of comparatively low class mineral? Stock manipulators have been claiming that this year's gold production at Cripple Creek will foot up to $12,000,000, but for the last two or three months the conviction has been forcing itself on impartial observers that, although the tonnage of the output has become heavier, the net returns have been growing less. Already there are many experts who declare that the returns for 1896 will be considerably less than those for 1895. On the other hand, there can be no doubt as to the area of known productiveness being steadily enlarged. A 7 feet breast of $183 ore has recently been opened in the May Bell tunnel, ¼ mile south of any producing mine in this district, and a circumstance of even greater significance, in the solid granite, without any admixture of eruptive rock. At about the same time a 2 feet vein of sylvanite ore was struck in the 65 feet shaft of the Daisy Belle, a mile north of Gillette, in what is known as the Oil Creek section. These two discoveries indicate an important extension of the district both north and south of the range hitherto regarded as valuable.

Considerable attention is now being paid to Florida Mountain, near Silver City, in Owyhee County, Idaho. Its development is now going on in such a manner as to give promise of a very great future. Some years ago Colonel W. H. Dewey, of Silver City, interested a few Eastern friends in the Trade Dollar group of mines lying up the gulch from the town. The corporation was a close one, and news of its doings was withheld from the public Press. It has now, however, leaked out that the Trade Dollar in August shipped $60,000 worth of concentrates and bullion, and that the September amount will be $60,000 in ore and $40,000 in bullion. Here, then, is a company producing at the rate of $1,000,000 yearly, without any fuss or parade, and quite unknown to the Stock Exchanges. It is another instance of the opportunities that await legitimate mining investment in the United States. Colonel Dewey, however, is not confining us to a single lesson. He is driving a 4000 feet tunnel right through Florida Mountain from the Silver City side to Black Jack gulch on the further flank. This will crosscut the various lodes at a depth of 500 feet lower than the lowest levels at present, and will, it is thought, prove the basis of an immense mining and smelting establishment.

TIN TICKETING.

THE fortnightly ticketing for tin ores was held at Tabb's Hotel, Redruth, on Tuesday. Results:—

VALUES OF ORES SOLD BY EACH MINE.

Mines	Tons	cwts.	Per ton. £	s.	d.	Value. £	s.	d.
Dolcoath No. 1	14	0	36	5	0	507	10	0
do No. 1a	14	0	36	10	0	511	0	0
do No. 1b	12	0	36	7	6	436	10	0
Wheal Grenville a	20	0	37	15	0	755	0	0
do b	13	0	37	15	0	490	15	0
Carn Brea and Tincroft 1	13	0	33	15	0	438	15	0
Mines (Limited) 1a	12	0	34	0	0	408	0	0
do No. 2	1	10	15	7	6	23	1	3
do No. 3	1	0	24	7	6	24	7	6
Basset Mines (Limited)	11	0	38	12	6	424	17	6
do No. 1a	11	0	38	17	6	427	12	6
do No. 2	4	0	26	12	6	106	10	0
Levant No. 1	14	0	39	7	6	551	5	0
do No. 2	2	0	30	15	0	61	10	0
West Kitty	14	0	38	10	0	559	0	0
East Pool a	6	0	24	12	6	147	15	0
do b	6	0	23	7	6	140	5	0
do No 2	1	0	8	10	0	8	10	0
Phœnix United	10	0	36	7	6	363	15	0
do No. 2	1	10	24	2	6	36	3	9
Wheal Kitty	8	0	38	12	6	309	0	0
South Condurrow	5	0	38	2	6	190	12	6
	194	0				£6901	15	0

AVERAGE PRICE PER TON, £35 11s. 6d.

AVERAGE PRICES PER TON.

August 11	£36 4 9	September 8	£36 1 6
August 25	35 18 2	September 22	35 11 6

The NEW PRIMROSE GOLD MINING COMPANY notifies that the capital of this company has been increased to £300,000, and shareholders are informed that they have the right of applying for one new share in respect of every 14 shares held by them on September 30 at the price of £5 per share. The whole of the issue of 20,000 shares has been guaranteed at £5 per share.

The Secretary of the ISLE OF THE MAN MINING COMPANY (LIMITED) has sold 100 tons of this company's ore at £8 8s. per ton.

The JOHANNESBURG CONSOLIDATED INVESTMENT COMPANY (LIMITED) notify that the transfer books of THE NEW REITFONTEIN ESTATE GOLD MINES (LIMITED), THE ROODEPOORT GOLD MINING COMPANY (LIMITED), NEW HEIDELBURG ROODEPOORT GOLD MINING COMPANY (LIMITED), and THE GOLD FIELDS OF LYDENBURG (LIMITED), will be closed from October 1 to 10 inclusive, for the purpose of balancing the share ledgers.

MINING IN NEW ZEALAND.

MINES STATEMENT.

By the Hon. A. J. CADMAN, Minister of Mines.

Ohinemuri.

THERE has been a very marked increase both in the returns and number of men employed during the past year. The steady returns from the Waihi Mine have proved the permanency and great value of such large ore bodies as the Martha lode, and have given English investors confidence in the stability of these gold fields. Since the beginning of the year a number of properties have passed into the hands of foreign companies, and for some time to come considerable sums of money will be spent in opening out and developing the large bullion reefs in this field. At Waitekauri the Waitekauri Gold Mining Company have undertaken some extensive works to open up and render accessible the valuable Golden Cross reef, and a few months should see largely-increased returns from their new battery. At Karangahake, the operations of the New Zealand Crown and Woodstock Companies have been carried on with much success, and, with the new stampers now being erected at each mine, there should be a corresponding increase in the value of the bullion returns. In the Ohinemuri gold fields dry crushing and cyanide treatment is universal. During the past year 45,284 tons of quartz yielded by amalgamation 1915 ounces, and by cyanide 121,284 ounces of bullion, while 11,724 tons of tailings gave a return of 23,887 ounces by cyanide and 415 ounces by amalgamation, making a total of 147,450 ounces of bullion, representing a value of £174,355, which is equal to about £1 3s. 7d. per ounce, as against 110,628 ounces of bullion, valued at £137,699—equal to £1 3s. 1d. per ounce—for the previous year. During the year 1724 men were employed in the mines, compared with 538 for last year.

Waiorongomai.

This gold field is traversed by another of very large reefs, the average value of which is very low grade. The successful working of these ore bodies will require the outlay of much capital in systematic development, and also for the erection of crushing machinery capable of treating large quantities of ore, and at the same time extracting a fair percentage of the values. Much of the ore in these reefs is of a refractory character, containing finely-divided gold, associated with or entangled in copper pyrites and silver sulphides. At Waiorongomai, a wealthy English syndicate are about to commence extensive operations on the big reef; and, should these be successful, a large increase in the gold returns may be looked for.

The quantity of quartz crushed and treated during the past year was 120 tons, yielding 153 ounces of bullion, while 54 tons of tailings gave 15 ounces of bullion, representing a total value of £91. During the year 36 men were employed on this field.

West Coast.

Reefton is the principal quartz-reefing district on the West Coast and is at present attracting the attention of foreign capitalists, who are taking up quartz mining properties with the view of further developing them. A large amount of English capital has been already introduced into this district, and the best of the properties, as far as yet ascertained, have been purchased by the Gold Fields Consolidated Company, represented here by Mr. Ziman. The introduction of large amounts of foreign capital will have the effect of the ground not only being worked at much greater depths than heretofore, but also of the mines being worked in a more systematic and economical manner. More modern machinery and appliances will be introduced and erected for the reduction and treatment of auriferous ores, and it is expected that a far larger percentage of the gold will be recovered.

The discovery of a new auriferous lode in the Keep It Dark Mine at a depth of 850 feet has done a great deal towards inspiring confidence in searching for lodes containing rich stone at deeper levels than heretofore prospected; and now, when capital is forthcoming to develop the mines in this district, there is reason to believe that brighter days are in store for Reefton, and that it will become a very large and important mining centre.

Otago.

The principal places in Otago where quartz workings are carried on are in Macetown and Skipper's. At the former place a considerable quantity of gold has been obtained from the Tipperary, Maryborough, and Premier Mines already, but it is to be regretted that the recent operations in these mines have not been attended with the success they deserved. The Tipperary, Premier, and Sunrise Mines are the property of an English company, who have expended a considerable capital to open them up more fully, and a large expenditure will yet have to be made before all the development works in progress will be completed, and the mines opened out so as to get payable returns.

At Skipper's, the Phœnix Company, which really meant Messrs. G. and F. Bullen's mine, is now taken over by the Achilles Company, which was formed in London, and large development works are being carried on to open up the mine extensively, and some good ore is in sight. This is the oldest quartz mine in Otago, having being opened in 1863, and has been almost continuously worked ever since.

A considerable amount of capital has also been expended in prospecting and development works in the Cromwell Mine at New Bendigo without yet meeting with success; but where so large a quantity of gold was obtained on the upper levels as that found in this mine, there is a reasonable prospect of another rich shoot of ore being found at the deeper levels.

At Preservation Inlet and Wilson's River the quartz workings are yet in their infancy. The lodes are not developed to such an extent as to justify a definite opinion regarding their value. Very rich stone was discovered in the Golden Site Mine at Wilson's River, but this block cut suddenly out, and very little work has been done to ascertain whether it can be picked up again further along the course of the lode, or at a greater depth.

There are large quartz lodes in many places in Otago; but where gold has not been seen in the stone at the outcrop there has been no work done to ascertain whether a shoot of auriferous ore may be found at deeper levels or not—as, for instance, on the range between the Clutha and Manuherikia Rivers, the old Man Range, and the Rough Ridge. These places are all traversed by quartz lodes, where little or no work has been done to determine whether some of them may be payable for working or not.

Alluvial Mining.

This branch of the mining industry is entirely confined to the Middle Island—in the Marlborough, Nelson, the West Coast and Otago districts. The whole of the shallow, rich ground being worked out, attention had to be directed to the terraces and flats, where there are great depths of superincumbent gravels overlying the richer auriferous layers of wash drift which are found on both false bottoms and on the bed rock. The upper gravels generally carry very little gold, and have to be removed in the most economical manner before the richer deposits can be got at; and the cheapest method of doing this is by hydraulic sluicing, which requires an abundant water supply. The cost of constructing works to bring a water supply to command the ground is in many instances beyond the means of private individuals; and ground that otherwise could be worked remuneratively is left waiting for capital to bring in water to work it on a systematic and extensive scale.

Marlborough.

The principal fields where alluvial mining is carried on in the Marlborough District are Wakamarina, Mahakipawa, and the Wairau; but at none of these places is there a large mining population. The gorge workings at the Wakamarina are still in hand. Several companies have been formed to work this claim, but have failed. However, extensive preparations are again being made to bottom this gorge, where it is expected by some to find a large

deposit of gold, while others are more incredulous, and affirm that the labour will be wasted.

At Mahakipawa the shallow workings in the creek bed are a thing of the past, and attention is being directed to working the terraces and deep ground in the flat, where a rich lead of gold is said to pass through the King Solomon Mine into Mr. Cullen's freehold. There is a large extent of country in the Marlborough district where little or no prospecting has yet been done, which, judging from the formation of the country, ought to contain auriferous gravels.

Nelson.

The principal gold field in the Nelson district is Collingwood. A large capital has been expended here recently by the Parapara Hydraulic Sluicing Company to work the Parapara flat, but so far a large amount of success has not attended their operations. There are, however, large quantities of auriferous drifts in this neighbourhood, which it is expected will yield sufficient gold to recoup the outlay, which is set down at about £25,000.

Other companies are being formed to work the auriferous drifts in the Quartz Ranges and Golden Gully, where it is proposed to bring in a water supply from the Clarke River and also from the Boulder Lake to carry on hydraulic operations. A considerable number of miners are scattered about in different gullies, and are said to be making fair wages. There are also a considerable number of miners engaged throughout the district at Anatoki, Kill-devil, Baton, Wangapeka, and the Crow diggings. The latter place is stated to contain large deposits of auriferous wash drifts; and on the strength of representations made to that effect a horse track was constructed from the Wangapeka Saddle to the head of the Crow River to enable the miners to get their supplies by pack horses instead of having to carry everything themselves. The construction of this track, as well as a horse-track from the Wangapeka Saddle towards Karamea will open up a large extent of country covered with auriferous gravels, as well as land suitable for cultivation.

West Coast.

This is the largest and most extensive gold field in the colony. Gold to the value of £22,280,426 has been obtained from the West Coast, and it still continues to produce about 30 per cent. of the whole of the yield of gold in the colony. It would be superfluous for me to mention all the different gold-bearing areas on the West Coast gold fields, but generally it may be said they extend from Karamea to Jackson Bay, a distance of over 270 miles; the principal being at Addison's Flat, Grey Valley, Kumara, Rimu, and Ross.

At Addison's Flat the leads of gold-bearing gravels extend a long distance back from the coast line, and run parallel with the sea-beach. Some very rich deposits of gold-bearing gravels have been found at different places on this flat; but the shallow and easily worked portions of the ground have for many years been worked out, and to carry on alluvial mining here now in the deep ground requires a good water supply and an extensive plant. The number of men who can be remuneratively employed on this flat is only limited to the supply of water that can be brought on to work the ground.

Grey Valley.

There are a large number of miners employed in different portions of the Grey Valley, at Antonio's, Blackwater, Noble's, Duffer's, Orwell Creek, Nelson Creek, No Town Creek, Moonlight, Blackball, as well as in several other places, in some of which extensive mining and sluicing operations are carried on. The great depths of auriferous gravels in such places as the Grey Valley, Napoleon Hill, and between Orwell and Noble Creeks, would give highly remunerative returns for working if a sufficient supply of water could be brought to command them.

On the north side of the Grey River there are large areas covered with auriferous drifts, generally of a more recent age than the gravels on the south side of that river, which give fair returns for working when water is available for hydraulic sluicing. A great deal of these drifts contains large boulders, which interfere to a great extent with the working of the ground, as at present all these boulders are shifted by hand, no mechanical appliances being used to remove them; but, no doubt, when attention is directed to this branch of the mining industry as an investment for capital, more modern systems of working will be adopted, and, instead of having a number of small claims, larger areas of ground will be taken up, and capital will be forthcoming to construct water races so as to carry on hydraulic sluicing operations extensively.

In the beginning of last year some good sluicing ground was taken up in the vicinity of Healy's Gully, and a water race from the Roaring Meg Creek commenced, to bring a supply of water to work the ground. This caused attention to be directed to this place, with the result that a number of claims have now been taken up, and from the prospects obtained are likely to prove valuable properties. A subsidy has been granted towards the water race referred to, on condition that it is constructed of such dimensions that at least 15 sluice heads of water will be available for working claims not directly interested in the race.

Kumara.

This may be termed the most compact alluvial diggings in the colony. It is also the largest alluvial mining centre. The ground at first was held in small claims. A number of these have now, however, been worked out, and fresh claims taken up further back, nearer the base of Kapitea Hill. Gold to the value of nearly £1,500,000 has already been taken from this field, where the worked out ground does not exceed 600 acres in extent. There is a very large area of country in this neighbourhood covered with auriferous drifts, which will in future years be worked, after the present claims have been exhausted and water has been made available. The auriferous drift being on a large, wide flat extending back from the Teremakau River for about a mile, necessitates the construction of expensive tunnel tail races to convey the tailings to where they can be deposited. A large water supply having been brought in by the Government, facilities are given to the individual miners to work the ground on the hydraulic sluicing system, while the price paid to the Government for the water leaves a fair rate on interest of the capital expended, as well as a sinking fund for the redemption of capital within a reasonable number of years.

Passing southwards from Kumara, there is a large extent of country covered with auriferous drifts, especially between the Arahura and Hokitika Rivers, known as the Humphrey's Gully gravels. In some places the depths of these drifts are over 250 feet. Hydraulic sluicing has been carried on here for a number of years; but the supply of water brought on to work the ground was totally inadequate to carry on operations in a satisfactory manner. Recently an English company has purchased the water rights and property of the Humphrey's Gully Company, and they intend bringing in a large supply of water from the Arahura River to work the ground on an extensive scale, whereby they hope to make it a remunerative property.

Rimu.

The workings here are carried on both by hydraulic sluicing and mining in the ordinary sense of the term. The greater portion of the population is engaged in driving out the ground from adit levels and shafts. There is a great depth of auriferous drift, but most of the gold is layers or bands. The elevation of a large extent of the ground in this locality where most of the miners are employed precludes the possibility of water being brought in to work the ground by hydraulic sluicing at anything like a reasonable amount. At present this is far beyond the means of the individual miner; but there is a good prospect of payable ventures being taken up here by a company or syndicate with sufficient capital to undertake the construction of a water race at a sufficient elevation to command the ground.

Ross.

There are large deposits of auriferous gravels on both the terraces and flats in the vicinity of Ross. The terraces are worked by hydraulic sluicing wherever water is available; but on the flat the ground can only be worked from shafts, and by the aid of heavy pumping appliances. On the Ross Flat eight different gold-bearing layers of gravel have been gone through, and no main bottom or bed rock has yet been reached. Notwithstanding that, the workings have been carried down to a depth of over 200 feet below the level of the sea, still in auriferous drifts containing highly rounded pebbles and stones, indicating that the material has been at one time subjected to river action. A considerable quantity of gold was obtained in the early days from the deep workings on Ross Flat, but the drainage plant used was not of sufficient capacity to contend with the water, and capital could not be raised locally to procure a larger plant. Consequently all workings in the deep ground have been for many years suspended.

The value of the auriferous drifts in the terraces have been sufficiently proved by the Greenland and Mont d'Or Companies. The latter company has been carrying on hydraulic sluicing operations for many years, and paying handsome dividends to the shareholders.

In concluding my remarks on the West Coast, I would observe that this is a portion of the colony which contains large deposits of auriferous gravels, as well as numbers of extensive quartz lodes, and where comparatively little prospecting has been done away from the mining centres. The alluvial drifts cannot be worked without a considerable capital to construct large water races and proper hydraulic plants to work the ground, and this generally is beyond the means of individual miners unless the ground is very favourably situated and water can be easily brought on to it. I am of opinion that many good mining properties can be acquired on the West Coast which, with sufficient means and judicious management, can be made to pay good interest on the capital invested.

(To be continued.)

MEETINGS OF MINING COMPANIES.

NIEKERK (KLERKSDORP) GOLD MINING COMPANY, LIMITED.

AN extraordinary general meeting of the shareholders in the Niekerk (Klerksdorp) Gold Mining Company (Limited) was held on Wednesday, at Winchester House, E.C., the Hon. HOWARD SPENSLEY occupying the chair.

The SECRETARY (Mr. Ernest Bergholt) read the notice convening the meeting.

The CHAIRMAN said: Gentlemen—The notice which has been read to you explains the objects of this meeting. You are aware that at present we own 95 acres of land upon which we have the valuable Niekerk reef, but we now have the opportunity, and it has taken us a long time in considering the matter, of purchasing for a sum of money to be paid wholly in shares, an additional 325 acres immediately adjoining our present property. After due and careful consideration we decided to ask you to authorise us to purchase this property. The Niekerk Company occupies this position in the development of the mine up to August 29. No. 1 shaft has been sunk 112 feet, No. 2 194 feet, No. 3 128 feet, and A1 156 feet. The first level has been made 70 feet down from the surface and the second level 170 feet from the surface, while it is intended to make a third level 270 feet from the surface. There are three drives from the second level, their length being 21 feet, 16 feet, and 21 feet respectively The manager's (Mr, Hassall's) report for July was issued to the shareholders on August 27, and his weekly report for August 22 to 29 shows that during that week 32 feet in all have been driven and sunk. In regard to the question of machinery, I may tell you that we have two Knowles' pumps and a 16 horse-power boiler on the mine. On August 29 the pipes had been fixed and the pumps were in position and at work in shafts No. 1 and A1. You may ask why we put the pumps in before erecting the crushing machinery. Well, in 1889, when the mine was being worked and was proving exceedingly profitable, the water prevented the miners proceeding with their work, and it is for that reason that we have been obliged to erect a sufficiently powerful machinery to keep the water down. We found at the depth where the original miners had left off some very considerable patches of stone which we hope to turn to the advantage of the present company. In addition to the machinery mentioned we have a cyanide plant with a capacity of 150 tons per day, which we purchased for £7000. This plant comprises a Corliss hoisting engine, similar to the one used at the New Primrose and Langlaagte Royal Mines; three 100 horse power boilers with feeding pumps; a Gates No. 4 crusher and driving engine; eight steel cyanide tanks, and pumps in connection; a retort furnace and all the necessary sundries. This machinery is either erected or is in course of erection. Tenders and specifications have also been obtained for the erection of a 30 stamp battery. The latest cablegram the directors have received states that the last assays from the No. 3 shaft, the shaft nearest the claims now to be acquired, were over 2 ounces to the ton. We, therefore, think the adjacent claims will be a very valuable asset for the company, and that the proposition is one which you ought to have no hesitation in accepting. Fortunately, we have here to-day one of our directors, Mr. Liddle, who has just returned from South Africa. When there he very fully inquired into the various arrangements connected with the property, and as I have not had the opportunity of doing so myself, I think it would be much better if you received from his own lips any information he may desire to give you as to the position of your property. (Applause.)

Mr. F. C. LIDDLE said, in regard to securing the 150 additional claims, he was thoroughly in accord with the scheme which he thought would prove an excellent deal for the Niekerk Company. There was no doubt about the Niekerk reef running through it, although the ground had not yet been opened up. But they had on their own property traced the reef to within 20 yards of the boundary, and the manager had recently cabled that the assay value at this point, which is 128 feet below the surface, is 2 ounces to the ton. He considered that the new ground would give them a mile along the line of outcrop, while in addition there were the dips to be counted on. The new ground would also give them ample room for their battery, dumping ground, cyanide plant, and all the necessary adjuncts for a mine in full working order. Another feature was that when they started crushing they would require a large area for their reserves, but if the resolutions which the Chairman would shortly propose were passed, they would have acquired plenty of room for the necessary storage of the ore. When he visited the Niekerk property he was very pleased indeed with the work that had been done during his absence, and he thought that the directors deserved to be congratulated on having selected such an excellent manager as Mr. Hassall. He had proved himself to be not only an expert miner, but an economical manager as well. He was developing the mine by permanent working, the shafts were well timbered, and the buildings were all put up in a highly creditable manner. During his (the speaker's) visit they took out samples from various points, and in all cases the assays were satisfactory. On returning to Johannesburg he asked Mr. Hassall to take out more samples, and send them to him sealed up. When he received them he took them to the African Banking Corporation, whose return of the assays made went as high as 2½ ounces, while the lowest was 12 or 13 dwts. Since then assays made of samples taken by Mr. L. A. Scowden, their consulting engineer, gave from 6 dwts. up to 2 ounces 9 dwts. per ton. In his opinion anything over 6 dwts. meant profit, and if, with the 30 stamp mill to be erected, they could treat 12 dwts. rock, which was a very moderate estimate, they ought to make 25 per cent. profit on the increased capital. He did not anticipate so small a return as 12 dwts., but merely wished to say that should the rock only be of that value they would secure the handsome profit of 25 per cent. Nor was there any reason why the 30 stamp mill should not be increased to 60 stamps and afterwards to 100. At present the company was only in its elementary stages, but if the resolutions were passed henceforth they would assume the position of a productive company. By the time they erected the mill there would probably be 100,000 tons of rock ready for crushing or already broken down. Mr. Hassall told him there would be no difficulty in keeping the mine ahead of the mill, while he agreed with him (Mr. Liddle) that they ought to have at least two years' reserves in the mine before erecting additional stamps. The reef in some places was 4½ feet to 5 feet wide, and at other points it was only 2½ feet, but the average width, he should say, was 3½ feet. The dip of the reef was very exceptional, and he did not anticipate that it would flatten out until they reached a depth of 900 or 1000 feet. For convenience in hauling, the shafts kept a grade of from 45° to 50°. They lost the reef when it dipped, but cut it again lower down, and it was then that they got the samples for assaying. In conclusion, he said he hoped the shareholders would support the resolution, as it was of the greatest importance that the 150 claims should belong to that company. (Applause.)

The CHAIRMAN then moved:—"That the two agreements dated September 12, 1896, between the Niekerk Consolidated (Limited), of the one part, and this company of the other part, be approved and confirmed."

Mr. NISBET (solicitor to the company) explained the purport of the agreements, and said the price to be paid for 150 claims was £50,000 in fully paid shares.

Captain W. N. LISTER seconded the motion and it was agreed to *nem con.*

The CHAIRMAN next moved:—"That the capital of the company be increased to £200,000 by the creation of 50,000 new ordinary shares of £1 each."

Mr. HOWELL seconded the resolution, and it was carried.

The CHAIRMAN also moved:—"That your directors be empowered to appoint an additional director, who shall be a person to be nominated by the Niekerk Consolidated (Limited) and approved by your directors."

Mr. LIDDLE seconded the motion, which was agreed to.

Mr. F. BINCKES, in proposing a vote of thanks to the Chairman and directors, congratulated the board on the excellent bargain they were making for the company, and spoke very highly of the admirable management of the board.

Mr. HOWELL seconded the vote, which was heartily accorded.

The CHAIRMAN having briefly replied, the meeting terminated.

HANNAN'S NORTH CRŒSUS GOLD MINING COMPANY, LIMITED.

The statutory meeting of the shareholders in Hannan's North Crœsus Gold Mining Company (Limited) was held on Monday, at Winchester House, E.C., Mr. J. B. GUTHRIE (Chairman of the company) presiding.

The SECRETARY having read the notice convening the meeting,

The CHAIRMAN said: Gentlemen—As you are aware, this is the statutory meeting, which, according to law, has to be held within four months after the incorporation of a company. It cannot, as a general rule, be expected that, in such a limited time, a company should achieve very great results, and more especially is this the case when it is a question of a mining company. Most of you must be perfectly aware that it takes a considerable amount of time to thoroughly open up a mine, and that all the plant and machinery necessary for the thorough equipment of a property, in order to effectively treat the ore, are not erected in a month or two. I think that I had better inform you, before proceeding with my remarks, that the property has been transferred to the company, and that consequently we are in full possession of the mine; and I may here, with, I consider, advantage, point out to you the position and prospects of the lease which we have acquired. Those of you who have studied the map of Hannan's district, Kalgoorlie, Western Australia, will have noticed that, as far as the situation of the claim is concerned, it is everything that could be desired—indeed, second to none in the district, immediately adjoining Hannan's Crœsus Gold, Crœsus, Crœsus No. 1 North, Oratava, and Successful, and in close proximity to the celebrated Hannan's Brownhill, and many other well-known and successful mines; therefore, as I have said, on this score we have every reason to congratulate ourselves upon having secured a property which is in the enviable position of being in the midst of such good company. Now I wish to say a few words as to the arrangements we have made as to the future management and working of the mine. Mr. G. P. Huret, a gentleman of great mining experience in Western Australia, and who is connected with some of the most successful ventures there, was appointed our local director, but so far we have not been so fortunate as to have had much of that valuable assistance and advice from him which otherwise we should have had, as he has been down with enteric fever, from which he is now, I am glad to say, recovering. We, however, have had Captain Thomas Eyre to look after our interests in the meantime and superintend matters generally, and as he in an experienced and well-known miner you may rest assured that everything has been done to properly further the developments which it is necessary should be carried out preparatory to the erection of plant and machinery. Your directors being fully alive to the great importance of securing the services of a gentlemen thoroughly competent to take charge of the property and do full justice to its great capabilities, are happy to inform you that they have made arrangements to that effect with Mr. C. O. West, who must, I think, be well known to many of those present, at any rate by reputation, as being about the most capable and experienced gentleman they could have selected for the post. Mr. West has had for years a vast amount of experience in gold mining, and is, moreover, a first class organiser, and in a word is both practically and theoretically one of our leading experts in all that relates to gold mining in all its various phases. Mr. West is on his way to Australia to take charge of the property, and will arrive there in about three weeks from now, so that we have every assurance that very shortly work will be pushed on with that vigour, combined with scientific and technical judiciousness and prudence which may well be expected from a gentleman of Mr. West's undoubted capacity, and your directors feel assured that under his guidance the very best results may be confidently looked forward to. I need hardly remind you that the selection of a really competent and conscientious manager is of the most paramount importance for the success of a mine, and I think that in this respect we could not possibly be better off. Of course, after Mr. West has thoroughly gone over the property, we shall have his report, and also his suggestions as to the best and most effective means to be adopted for the successful working of the lease, and, having regard to the reports which we have had on it already from several eminent men in their profession, your directors have no doubt whatever that Mr. West's opinion will be amply confirmatory of all that was stated in the prospectus. You are of course aware that the railway has now been opened to the town of Kalgoorlie, which is but two miles from Hannan's North Crœsus; and I think it is hardly necessary for me to point out the immense saving which we shall effect in the cost of carriage, and the enormously increased facilities we shall have for getting our stores, plant, machinery, &c., up to the mine, and the very great reduction in the time it will take to carry out its thorough equipment. With respect to the great water question, this may be looked upon as being now disposed of, the Government having agreed to the expenditure of no less a sum than £2,500,000 in order to provide the gold fields with an ample supply both for mining and ordinary purposes at a charge of about 3s. 6d. per 1000 gallons. Of course it will take some time for the work to be carried out to ensure this service, but I think we may take it that no time will be lost, as witness the very praiseworthy, rapid, and effective manner in which the Government has dealt with the railway extensions. As to the work already done on the lease, there is a shaft sunk about 90 feet from the eastern boundary to a depth of 115 feet, and a crosscut has been put in 122 feet in length. Another shaft is also down 108 feet, and two crosscuts have been driven—one 22 feet and the other 83 feet. We expect to hear at any moment that these drives have cut the lodes which are being so profitably worked on

the adjoining leases. In concluding my remarks, I wish to remind you that we have 12 acres of ground in the very centre of the richest part of Hannan's district. We have allotted nearly 73,000 shares, and have ample working capital, but, if required, the vendors have agreed, such is their faith in the enterprise, to guarantee the issue of the balance of the shares not yet allotted, and which are held in reserve. An application has been made to the Stock Exchange for a special settlement, the result of which we shall know in a week or so. Altogether, I think you will agree with me that the prospects of the company are first rate, and I have little doubt that before many months are over our heads your directors will be able again to meet you in order to give you most pleasing intelligence. Of course, at this early stage of the company's existence, it would be presumption on my part to make any forecast as to what the dividends are likely to be, but, judging from what is being accomplished by our neighbours, I trust I am not going too far in saying that we may fairly anticipate equally satisfactory results in the North Oroesus. (Applause.)

A vote of thanks to the Chairman concluded the meeting.

ROME CONSOLIDATED GOLD MINES, LIMITED.

The statutory meeting of this company was held on Tuesday, at the Great Eastern Hotel, Liverpool-street, E.C.,—Colonel Ross presiding.

The notice convening the meeting having been read,

The CHAIRMAN said: This, as you know, is what is called the statutory meeting, which has to be called within four months from the date of registration of the company. There are no accounts and no resolutions to place before you, but advantage is taken of this meeting for the board to explain to shareholders a few preliminaries connected with the formation of the company. As you know, we were registered on May 28 last, with a capital of £106,000, of which £90,000 was offered for subscription and fully subscribed, there being about 360 shareholders on the register, the precise number being, I believe, 357. Our first duty was then to pay the usual deposit on account of the purchase money, but the registration of the property in the name of the company took some time, the seat of legal operations being a long way off. The post occupies some five or six weeks in transit, and, of course, there are many things which cannot be done by cable. However, we carried matters through as speedily as possible, and we got the property transferred on August 19 last. Our next business was to advertise for a manager, and, of course, we had many applicants. We finally selected the man whom we thought the best, and he sailed for Australia on September 4, and is, probably, half way there by this time. I may take this opportunity of saying that everything being in order so far, an application has been made by the company's brokers to the Stock Exchange for a settlement. You will all remember the original report from Professor Nicholas, which was embodied in the prospectus. We have since obtained from him an additional report, in which he confirms all that he said before, and speaks favourably of the property. Pending the arrival of our manager, we have a gentleman in temporary charge of the property who is carrying on the necessary work required by the labour laws of Western Australia. I will now read you an extract from a letter which has been received from the other side, which contains most satisfactory news. The letter states:—"I have endeavoured by means of an approximate sketch plan to show you the position of the lease, but as Professor Nicholas has been appointed consulting engineer, I do not like to appear to interfere in any way with him. At present Professor Nicholas is detained in quarantine at Albany, a case of small-pox having broken out on the steamer which he was aboard. Consequently, he cannot send you any report of the work or how it is intended to carry on same. At present the work being done is driving south from No. 1 shaft and sinking No. 7 shaft to connect with the drive. In No. 1 shaft at 120 feet deep a drive has been put in north about 12 feet. A parcel of 40 lbs. from this point gave 4 ounces 8 dwts. In No. 2 shaft at 50 feet a parcel of 35 lbs. gave 3 ounces 6 dwts." These assays are extremely satisfactory. Of course, we are a long way off crushing yet, but I should say that scarcely anything could be more satisfactory upto the present moment than the assays we have got from these two shafts. No. 1 shaft is now down 130 feet and No. 2 about 70 feet. I have given you the value of the ore in both of our shafts, and if you have followed the financial papers where they give you the average yield of gold that is got from mines in Western Australia, you will find it is 2½ ounces to the ton. Consequently, our assays come out very well. On the subject of working expenses I may say that the estimate at the present moment is from ½ to 1 ounce per ton. That is very heavy compared with South Africa, but it is owing entirely, I fancy, to the high price of labour. In Western Australia European and white labour is employed, and it is expensive; while in South Africa they employ Kaffir labourers. You can get Kaffirs for £4 per month with mealies, and it is shortly coming down to a lower price, whereas white labour in Australia costs 10s. per day. Then there is the water question. You all know how dry a country Western Australia is, but so is the veldt in South Africa; but you will find in both places that after going down a certain depth that you come upon water, and sometimes water in sufficient quantities to work your batteries. In the Rome property we have not got down to that point yet, but by the time we do, if we do not get sufficient water out of our mine, the project for a water supply which is being carried out in Western Australia will have reached a later stage, and we shall be able to get water at the rate of 3s. 6d. per 1000 gallons, which may remove any anxiety we may feel as to whether we shall have sufficient water. We have, at all events, got hold of a good property, which is reported to contain seven ironstone and gold reefs. This ironstone, in many cases, is in the form of decomposed iron pyrites, and almost invariably contains a good quantity of gold. I do not know that there is anything else to say on this occasion. When the next ordinary meeting is held there will be a report and statement of accounts to lay before you. At the moment I do not see that we can progress much farther until our manager arrives on the property. I am much obliged to you for your attendance, and am glad to see so many shareholders present.

There being no questions, a vote of thanks to the Chairman for presiding terminated the proceedings.

ARGENTINE CONCESSIONS (LIMITED).

An extraordinary general meeting of the shareholders in the Argentine Concessions (Limited) was held on Monday, at Winchester House, E.C., Mr. H. Fergusson presiding, for the purpose of confirming the resolutions passed at a previous meeting providing for the reconstruction of the company.—The Chairman, in moving the confirmatory resolution, said the directors would never have asked the shareholders to furnish them with additional capital had they not have been convinced that under the supervision of Mr. Doering, their excellent mine manager, the success which they anticipated would be achieved. By the proposal now before them, they hoped they would secure considerable advantages for the proprietors, and that in due time they would be in a position to pay them a handsome dividend on the money invested.—Mr. Briscoe seconded the motion, and it was agreed to.

NEW AUSTRALIAN BROKEN HILL CONSOLS (LIMITED).

The first ordinary general (statutory) meeting of the shareholders in the New Australian Broken Hill Consols (Limited) was held on Tuesday, at Winchester House, E.C., when Mr. J. H. Ward, who presided, stated that the scheme by which the old company had been wound up and the present one formed—the object being to raise additional working capital—had met with great success, over 595,000 of the 600,000 shares having been allotted. The remainder were held in reserve, because there were a number of Australian shareholders who had not yet had time to communicate with the board. The mine looked very promising at present, and they anticipated that good results would follow the reconstruction of the company.—A vote of thanks to the Chairman terminated the meeting.

GREAT BOULDER (NO. 1) GOLD MINES, LIMITED.

The statutory meeting of the shareholders in the Great Boulder (No. 1) Gold Mines (Limited) was held on Thursday, at Winchester House, E.C., Mr. A. R. ROBERTSON, presiding.

The SECRETARY (Mr. James Edwards) read the notice convening the meeting.

The CHAIRMAN said: Gentlemen—As you are aware this is the statutory meeting of the company and is convened in accordance with the Act of Parliament, therefore we have no accounts to present to you, nor have we issued any report and we also do not ask you to pass any resolutions. As the formalities necessary for the transfer of the property only had to be carried out as between the parent and the sub company, the title being guaranteed by the former, the vesting of the ownership of the property was practically completed at an early stage of the company's existence. The directors thought it was desirable, under the advice of Mr. Lane, at the initiation of the work, that the present manager of the Proprietary Company (Mr. Richard Hamilton) should act as manager for our company at the same time. Arrangements were made with Mr. Lane to take the superintendence of our property also. We do not think at the present time that we could have made better arrangements than these, though there is in my mind little doubt that our property will ere long have such important developments as to, in all probability, necessitate some assistance being given to these gentlemen at an early date. The whole of the present issue of the shares set aside for working capital was fully subscribed, and would, no doubt, have been largely over-subscribed, had it not been for the fact that in order to save trouble to applicants, the Proprietary Company announced that their own shareholders would have the preference in obtaining an allotment, and in accordance with their desire the allotment was so made. Our next step was to distribute the shares declared as bonus to the shareholders and to the order of the Proprietary Company, and I think you will admit that this was done in a very prompt manner. In fact, I think you should be pleased with the expedition shown in carrying out the above, and in obtaining a settlement in your shares, without having recourse (as is too often the case) to make any alterations in our Articles of Association. I will now touch upon the special points referring to the company's property, although, as I have already told you, the company having been only so short a time in existence there could not possibly be any great progress to report since the issue of the prospectus, though I may add that from all the subsequent reports received both from Mr. Hamilton, as also from Messrs. John Taylor and Sons' representative, Mr. Garland, who visited and reported for us on the mine, and who, I am pleased to say, is here with us to-day, have fully confirmed all the statements made in the prospectus. As has been pointed out in the prospectus, and as you will see from the map, this block (or lease 50 east, formerly known as Great Boulder Extended, is the most northerly of the Great Boulder leases, comprising 24 acres in area, and a length on the line of strike of the Great Boulder main lode of about 1446 feet. Up to the time of the formation of this company but little had been done to develop the lodes in this block, the work being confined to prospecting on a very limited scale, and consisting of the sinking of a shaft—No. 1 shaft—in the north east corner of the lease, and the working of some alluvial ground in another portion of the block. No. 1 shaft was sunk to a depth of 70 feet, and levels driven therefrom at that depth north and south 170 feet on a lode 6 to 8 feet wide, and giving an average assay of 12 dwts. to the ton. Since this company took over the property on June 1 last the sinking of two trial shafts has been resumed, No. 3 and No. 5 shafts, and although but little time has elapsed, yet a fair amount of work has already been done, and vigorous work is now being carried out. On July 31 the date of the latest mine report to hand, No. 3 shaft had attained a depth of 100 feet, and a crosscut west had been started, passing through similar country rock to that enclosing the lode at the Great Boulder main shaft workings—viz., a weathered greenstone or what is more commonly called locally, a "decomposed diorite." No. 5 shaft at the same date was 30 feet deep, and is apparently being sunk on a lode which had a large outcrop of ferruginous quartz showing free gold, and is now reported to consist of ironstone and quartz carrying a little gold. It is intended to sink this shaft to 100 feet, and to crosscut east to meet the crosscut coming west from the No. 3 shaft. A cablegram to hand a few days since advises this shaft as now down to 72 feet. This morning we received the following cablegram:—"Have struck a good body of ore, 1½ ounce to the ton of 2240 lbs. at the bottom of the shaft No. 5. The present depth of the shaft is 72 feet." Neither Mr. Garland or ourselves expected that we should get anything like 1½ ounce, at so, comparatively speaking, high level as 72 feet. We did not expect to strike such rich ground at anything higher than the 100 feet level, so this telegram has been to us a source of great satisfaction. The strike of the Boulder main lode indicates that it will probably traverse the entire length of the property, and a letter to hand by this mail from the general manager, dated August 11, leads us to expect that this lode will be intersected by crosscut at the 100 feet level somewhere between Nos. 3 and 5 shafts. Mr. Zebina Lane, in the prospectus (as you will remember) expresses a decided opinion that the Great Boulder lode passes right through the Great Boulder No. 1 property. This view has been confirmed by Mr. Hamilton in his letter dated August 11, and on this point Mr. Garland states that unless the Great Boulder lode happens to be faulted by a cross course, or unless a change in direction has taken place, a supposition which, in his opinion, and in ours, is highly improbable, the main lode cannot fail to traverse the whole of the northern block—that is, the whole length of the Great Boulder No. 1. In addition to the quartz lode in No. 5 or west shaft, and the Great Boulder main lode which is believed to run parallel thereto, to the east of that shaft, and the east lode at No. 1 shaft, which is not being developed for the moment, the recent discovery in the Ivanhoe Mine, which is situated at a short distance only to the south of this block, reveals to us that we have running diagonally through the south-east corner of our property the east lode of that mine for a distance of about 880 feet. This, Mr. Garland reports, is a remarkably rich lode, 10 feet in width, and yielding as much as 6 ounces to the ton from the battery. Assuming, then, that there is no question about the Great Boulder main lode passing through our property, and of this we have no doubt whatever, there are four distinct lodes in our ground. Mr. Garland, in his report to the Proprietary Company, of May 31, and in his mention of this company's property, stated there was good ground for the expectation that there were three lodes intersecting this company's property, he now believes that we have at least four lodes, one of which, as I have already mentioned is the Great Boulder main lode. Such being the case, and the length of the line of strike of the Great Boulder main lode running through our property being reported to us by Mr. Garland as about 1446 feet, we have a greater length than the existing main workings of the Great Boulder itself and from which such marvellous results have been obtained. The existing length—and this is a very important matter to you—of the drive in the 100 feet level between the Great Boulder and the Great Boulder South has not attained a greater distance than 1262 feet. In spite of the enormous yield derived from this the main property, amounting to £265,000, not including tailings estimated at some £100,000, besides the enormous reserves, and this will give you some idea of the possibilities of our property when fully developed, and bears out our opinion and the opinions of all parties who have visited the mine on the spot, that in Great Boulder No. 1 we have a very valuable property. You must please bear in mind that work only commenced seriously on the Great Boulder early in 1895, and that only 18 months have elapsed since the first crushing, which produced the extraordinary results I have already alluded to. Orders have been sent out to push on developments as rapidly as circumstances will allow, and the experience which you have had as to the manner in which the main property has been managed by the same gentlemen as I have said are now managing your property and who never allowed the grass to grow under their feet during that time, I think you may rest satisfied that there will be no delay in bringing your property before long into the dividend-paying list. I might further add that we have authorised the management to order machinery and stamps as and when they think it advisable, and we can safely trust them to do so the moment they consider that the development work is sufficiently advanced. As I have told you before, we can give you no very extensive news, having had such a very short time with which to develop the property, but I can state that every expectation we had formed, and all the information given you in the prospectus when you were asked to subscribe have been fully carried out. I shall be very pleased to answer any question that any shareholder wishes to ask me, while at the same time Mr. Garland, being present, probably you would like to hear something from him, coming, as he has, almost direct from the mine. (Applause.)

Mr. JOSEPH GARLAND, who was received with cheers, said: Gentlemen—I may preface my remarks on the lodes in Great Boulder No. 1 by a brief reference to the Great Boulder Proprietary Mine and the development of the main lode in that mine. That lode has been laid open in the 100 feet level south of main shaft for a distance of 1262 feet (806 feet south of main shaft, and 456 feet north and south of No. 4 shaft). As might be expected, for such a considerable depth, the lode is not uniformly rich for the whole distance, but with the exception of a score of two of feet here and there, the lode is gold bearing throughout, and the main shoot which extends some 415 feet is exceptionally rich. A specially interesting and important feature in the lode is that it has split into two distinct branches, which are divided by a horse or dead ground for a length of about 200 feet, and that these two branches (locally termed the east and west lodes) occur in the richest ground in the mine. Thus not only have you a very rich section, over 400 feet long, sandwiched in between a great stretch of ground of lesser value, but nature has been so prodigal of her resources as to double the lode, for it happens that the two branches are about equally rich for a length of over 200 feet. And this is repeated in the 150 feet and the 200 feet levels, for in the 150 feet level the rich shoot extends on the east branch about 205 feet, and on the west branch about 412 feet—practically the same as in the 100 feet level—while in the 200 level the shoot is already driven on the east branch 270 feet, and on the west branch, only recently started, 75 feet. And now to refer very briefly to the lodes in Great Boulder No. 1 property. As is shown in red lines on the surface plan on the wall there are probably four lodes in this block which has an area of 24 acres.—Boulder lode. This lode strikes into and probably traverses the whole length of the block. It is now being prospected for by sinking Nos. 3 and 5 shafts. No. 1 lode has been prospected to a limited extent. A shaft having been sunk 70 feet, the lode intersected and driven on north and south for 170 feet on a lode 6 to 8 feet wide, yielding an average of 12 dwts. per ton. This, therefore, is a promising lode.—The quartz lode. This is a lode referred to in Mr. Hamilton's recent reports upon which he is sinking No. 5 shaft, and which he states was started in a bold quartz outcrop, showing visible gold; he now reports that the bottom of the shaft is in ironstone and quartz still carrying gold.—Ivanhoe east lode. This is the lode recently intersected in that mine at the 100 level. I had an opportunity of examining it just before I left West Australia for London. It is a splendid looking lode, 10 feet wide, and yielding about 6 ounces per ton in the battery. It is of the usual composite schistose character common to the lodes in Hannan's Field. The strike of the lode takes it right through 102 E block and into Great Boulder No. 1, through which it runs diagonally, if it maintains its direct strike, a distance of 880 feet. This is a lode which should certainly be explored in this property, and I have no doubt, as I suggested to the general manager, that he will give his attention to it, as soon as he had located and intersected the Boulder lode. I may say that I regard this lode as next in importance to the Boulder lode itself. It will be noticed on the plan that the Ivanhoe lode forms a junction with the Boulder lode. What effect this will have on the lodes it is not possible to predict; but one or two things will probably happen—either the Ivanhoe lode will unite with the Boulder lode (in which case the latter should be enriched) or the Ivanhoe lode may be faulted and thrown somewhat to the east or west. Seeing that the company has three or four distinct lodes in their ground, and that two of them are very rich in the contiguous properties, I think the prospect of good discoveries are very good, and that this property is likely to become one of great value. I would like to add that the company have in their general manager, Mr. Hamilton, a hard-working man, a thoroughly good miner, a first rate millman, and an excellent manager.

The CHAIRMAN: I am sure you will join with me in expressing our thanks to Mr. Garland for having given us such a clear and precise estimate of the position and prospects of our property. I do not think I can add anything more to what I have already said, except that your directors believe that in the Great Boulder No. 1 we have a property the capabilities of which are probably not properly understood in London at the present day.

Replying to a SHAREHOLDER, the CHAIRMAN said: We consider the working capital of the company quite ample, inasmuch as it is more than the Great Boulder itself had. We have nearly all the money in hand as but very little has been spent, and there is not the slightest doubt that it will be quite sufficient to bring us good dividends. (Applause.)

A vote of thanks to the Chairman concluded the meeting.

HANNAN'S VIRGINIA GOLD MINING AND DEVELOPING COMPANY, LIMITED.

The statutory meeting of the shareholders in the Hannan's Virginia Gold Mining and Developing Company (Limited) was held on Thursday, at Cannon-street Hotel, E.C., Mr. M. W. COLCHESTER-WEMYSS presiding.

The SECRETARY (Mr. J. Clayton Chilliogworth) read the notice convening the meeting.

The CHAIRMAN said: Gentlemen—This meeting, as you are aware, is simply the statutory meeting of the company, which is held in order to satisfy the conditions of the law. We have been obliged to put off this meeting until almost the latest possible date, because there have been some inevitable delays in carrying out the transfer of the property in West Australia. You may have noticed in the papers lately that there have been several complaints as to the delay which has been occasioned—whether it is officially necessary or not I am unable to say—causing serious inconvenience in many cases; we have been sufferers among the rest, but a cablegram which was received a few days ago from our bankers informs us that they have every reason to believe that the transfer would be completed in the course of seven days from the date of that message being sent, and as that seven days will expire to-morrow, we may practically say that the property has now been transferred, and we shall be able to enter into possession and carry out the work. Of course, we have no report to submit on the present occasion, this being merely the statutory meeting, but it may not be uninteresting to you to hear a few words as to the property which we possess, and what are likely to be our prospects. This company is in possession of two properties, the old property, which the former company possessed in South Africa and also the two leases, which we have called the Empress of India leases, in the district of Kalgoorlie, in the immediate neighbourhood of the Corsair Mine. In reference to the former, the old shareholders in the Virginia Company will remember that a considerable amount of money was expended on that property. Some valuable machinery was erected, and we had good last anticipation that in the end success would crown our efforts; but unfortunately, that did not prove to be the case, and all the money having run out, we were compelled to wind up the company. This has now become the property of the Hannan's Virginia Company, and I may say that an independent valuation recently

mate of the company's property in South Africa placed the value at £10,000. That is really a fully equipped mine with ample water power, and it is a mine which has undergone a very considerable degree of development. It will probably be advisable for the new company to continue that development, notwithstanding the unsatisfactory result of the first workings that were carried out there to, at any rate, some extent. That was the advice which we received from an engineer, who went there specially on our behalf just before the mining operations ceased, and his advice we have every reason to think is good, and that an outlay of perhaps £1500 will positively prove whether the mine is good enough to work or whether it had better be altogether abandoned. The gentleman to whom I have referred recommended us to sink the main shaft another 100 feet, so as to ascertain what the lode may show at a greater depth. If we then find the mine to be valuable, it will be open to us either to float the property as a separate company, or to work the mine ourselves. This property at the present moment stands as an asset of the company valued at £10,000; it may prove exceedingly valuable, or it may have to be written off. We have also the two leases which I have mentioned in the Kalgoorlie district, which cover an area of 48 acres. These are in a district which has lately been extremely fashionable; almost every acre of ground there has now been pegged out, and we have every reason to believe, for we are informed on the best authority, that these 48 acres represent an extremely valuable property indeed. As soon as the transfer has been effected, we shall be in a position to take in hand active operations, and the directors confidently anticipate that by the time we have the pleasure of meeting the shareholders again we shall be able to present a very satisfactory report of what will then have been done and what the future prospects of the company will be. There are one or two gentlemen present who know something of the property—one gentleman, in particular, has personally been over it. If the shareholders would like to hear what his opinion is in reference to it, I will ask him to give it, and further, if any shareholder wishes to ask a question upon any matter connected with the company, I shall be glad to answer it. I may now briefly congratulate the shareholders on the fact that they are possessed of two properties, one of which we believe to be extremely valuable, while the other has a more or less doubtful value. We have ample working capital; a very large proportion—something like 75 per cent.—of the shareholders in the old company have thrown in their lot with the new company, and I can only express my regrets to them that their former experiences were not more satisfactory than they were, and my earnest hope and belief that the new venture will be so extremely satisfactory, that they will completely forget their misfortunes in the past. (Applause.) I will now ask Mr. Hall, who is personally acquainted with our property in West Australia, to give the shareholders his views with reference to it. I only met Mr. Hall five minutes ago, so I do not know what his views are, and I shall be glad to hear him myself.

Mr. JAMES HALL said: Gentlemen—What I can say about the property is not a very great deal. I was over that ground in West Australia somewhere about 12 months ago, and at that time, I may tell you, there was not a great amount of development done, but what was done had every appearance of turning out most successfully. Since then there has been a property floated here by a gentleman who is well known, no doubt, to all of you, Mr. George Gray, called the Corsair Consolidated, and what has taken place on that property since he has returned to that country, and what has also taken place on these 48 acres of yours up to the present time has been most satisfactory. It is a lode formation somewhat similar, as far as I could see at the time I was there, to the lode formation that was found at Hannan's Brownhill. It is a kind of green stone—not exactly stone, but a mullocky formation of decomposed quartz and other matters which carry gold, and which, no doubt, Hannan's Brownhill has itself proved, though perhaps not satisfactorily, to those interested in it. I believe, however, it will eventually do so, as the lode is a good one. Of course, their difficulty has been with machinery, but that has nothing to do with this company. I have an idea of my own that this particular line of country—the Corsair line—is carrying through the same lode formation as to what has been got in the Hannan's Brownhill. Gentlemen whom I know intimately, and who have recently come home after seeing a great deal more of the development than I did, bear out that idea. They report that they have two or three shafts down—the deepest, I am told, being about 100 feet—and with very good results. They have good payable stone there. These gentlemen are going back to Australia, as they are deeply interested in the whole of that line of country. Their presence there will be of their own advantage, and, of course, it will be to ours, as they will use their best efforts for the full development of the country. I have little doubt in my own mind that it is going to be a big mining area. As I said before, the Corsair line is a property which has been brought well before your notice by our friend in Australia, Mr. George Gray, who I am sure would not have floated the property had he not had the utmost confidence regarding it. Were it not a genuine concern, Mr. Gray would not have placed it before the English public. Everything indicates that the Hannan's Virginia have a good property in Western Australia. As to the other properties in South Africa, I know nothing about them. These I leave to gentlemen who have a knowledge of Africa, I was never there. But so far as Western Australia is concerned, we have a good one, and I think you will have nothing to regret in having put your money into it. With judicious management, which is, of course, one of the foundations of success with all companies, I am confident that in a very short time you will get such reports and returns from the mine as will perfectly satisfy you. I do not think you have anything to fear in connection with the Corsair line of reef. That is all I can say at the present time. I am not very much interested in the company, but I have got a few shares, and I am going to keep them, and I hope you will all do the same, as you will find it beneficial to do so. (Hear, hear.)

A vote of thanks to the Chairman terminated the meeting.

PROSPECTORS' ASSOCIATION, LIMITED.

The second ordinary general meeting of the shareholders in the Prospectors' Association (Limited) was held on Wednesday, at Winchester House, E.C., Mr. C. E. HOGG presiding.

Mr. WILLIAM H. BROWN (secretary *pro tem.*) read the notice convening the meeting.

The CHAIRMAN said: In our report we state that we trust the accounts and the general manner in which the business has been conducted will prove satisfactory to the shareholders. You will remember, perhaps, that this company started with a capital of £20,000, of which the sum of £10,000 was available for investment in various concerns that were thought suitable by the board. Of that amount £8342 was subscribed, and your directors are able to state by the testimony of the auditors that with that small sum they were enabled to earn a net profit of £10,467 9s. 5d. I trust, and the board trusts, that all the shareholders will agree with us that this is not only a satisfactory but a remarkable result. It did not require the expenditure of that sum of money to earn that amount, for that sum of money was employed, not only in earning that profit, but in also acquiring interests in other mining ventures which they have every reason to believe will in time bring in handsome and remunerative dividends. I think that the balance-sheet showing so good a result on so small a capital fully justifies the step taken by your directors in asking, as they did some months ago, for an increase of capital by £10,000. I believe I stated on that occasion that I had every reason to believe that the shareholders had sufficient confidence in the board to entrust it with larger sums for future expenditure. We have no reason to doubt but that the money entrusted to us will turn out equally remunerative, and give equally satisfactory results as those sums that we previously had at our disposal. In briefly reviewing the business of the company I may revert to its first venture—that of the Golden Arrow Mine, or, as a portion of it was previously called, the St. George's Arrow Mine. Your company holds one-half of what is now the Golden Arrow Mine, which was absorbed under the general name of the Golden Arrow Mine (Limited). We have no reason to feel otherwise than proud of, in our first venture, having launched on the public a mine that has proved, and is proving, itself to be eminently successful. I may mention, as a remarkable testimony of the Golden Arrow Mine's popularity, that there are to-day upwards of 1500 shareholders on its list. I am in a position to state that that company has received from its new manager, Captain Hewitt, a most favourable report—a report fully bearing out and justifying all the expectations formed in connection with that property at its inception. The next venture into which this company entered was that of sending out a prospecting party under the management of Mr. Hewitt. I have told you at previous meetings, and we have also announced to you in circulars, that the matter in connection with the prospecting is progressing favourably. Mr. Hewitt has succeeded in acquiring a property known locally as La Mascotte, which property contains some 36 acres, and is situated in the Black Flag district, around which a large number of mines of a highly promising character are being developed. I saw recently, by an Australian paper, that that district is really erecting more batteries just now for the treatment of its ore than any other single district of equal size in Coolgardie. I think that speaks hopefully for our future venture. It is a venture that we are prospecting diligently and endeavouring to develop to the best of the ability of our local manager, and it is one that your board anticipates will turn out reasonably successful. The next venture into which this company entered was that of the Mount Margaret Reefs. That property is situated, as the name implies, in the Mount Margaret district. It is peculiarly fortunate in one respect, and that is that it possesses a large and, as we have reason to believe, an adequate and constant supply of fresh water. It is a new phase in connection with mining in Western Australia, where salt and highly-mineralised water have in every case predominated. That property is, under your auspices, being diligently worked and developed. The battery, ordered some time ago in London from the firm of Messrs. Bowes Scott and Western, has, we are informed, now reached Coolgardie, and we have reason to believe that at no distant date it will be on the property and treating the ore in a highly profitable manner. We have not yet offered this venture to the public, as we desire to further exploit it—to further open out the large reefs which it contains. Our manager reports that there are five reefs on the property all gold-bearing and very rich, and full of future promise. It has not been launched, not only for that reason, but also because the times lately have not been very propitious for the flotation of mining ventures. I may mention that the holding of this company in that property amounts to about £20,000, which, of course, will be almost wholly—there are some expenses to be met—at the disposal of your board for future dividends. The question of the expenditure to be incurred in connection with mining at Coolgardie is one of such great moment that perhaps you will bear with me while I give you such information as, owing to my position as consulting engineer for several large batteries and companies in Coolgardie, I am able to supply. After having experience of the crushing of a great many thousand tons of ore, at this date, when the expenses are higher than we have any reason to suppose they will be in the future, and when the water supply is to some extent inadequate, it is satisfactory to be able to state, and to state with confidence, that even under these adverse circumstances 11 dwts. to 12 dwts. of gold per ton will pay all proper charges and expenses. With regard to the water question, I am glad to find that the Government of Western Australia, acting under the advice of its tried and skilled engineers, has adopted a scheme which appears to be one of very great magnitude, but which actually carries out the anticipations I formed of procuring the water practically locally. We have reason to believe the Government is going to spend a sum of £2,500,000. Although we look with hope and satisfaction to this large scheme which has been propounded by the Government of Western Australia, still, judging from the recent discoveries of water, we feel that in the meantime we have such a supply as to put us beyond necessity and want. The next property, after the Mount Margaret Reefs, that your company entered into was that of the Key of Komata, in which it holds an interest of no less than £20,000. Looking carefully into the various ventures that have been floated in connection with New Zealand, I cannot find any of a more promising nature. It is described as being a property of 149 acres, containing no less than eight gold-bearing reefs, and lying in the great channel of gold-bearing country peculiar to the Komata district, on the Thames. In floating this company, and in entering into this speculation, your board took, I think, a wise step in keeping the capital low. The capital for so vast an area is only £100,000, while they set aside so large a sum as £40,000 for working capital, such as might be required immediately or in the future. Of that amount, I am glad to say, £20,000 has been subscribed; the transfer of the property has been registered, and the various legal details in connection with the transfer will take place almost immediately. We did not go into this venture hastily; we had reports of very able men, such as Captain Argall, Dr. Benny, and others. These gentlemen's reports, while being cautious, discreet, and careful, are eminently encouraging, and it is satisfactory to point out that the shares of the mines whose reefs we have—that is to say, the Komata Reefs and Komata Queen—stand to-day at from 400 to 100 per cent. premium. Unless some extraordinary collapse takes place in the country generally, we have no reason to doubt that when our shares are placed upon the market they will be received with equal popularity and favour by the investing public. I think that your association is safe in venturing the investment of the shareholders' capital in both those companies. They have refrained, and I believe it is the intention of the directors to refrain, from investing the capital of the company in any foreign concerns whatever. It is difficult in a company like this, which makes, as it were, its money spasmodically, to pay regular dividends; but it is hoped that, now we have so large a fund in hand, and our prospects are so encouraging, we may be able to so regulate matters that while paying regular dividends in, I trust, the near future, we will be able to lay by a substantial sum so that we can continue and extend our developments, and maintain with some degree of equality the dividends that we hope to pay. You must not forget that we have already paid a dividend of 100 per cent. on the ordinary shares and 40 per cent. on the founders' shares. That was a large achievement; but I am not altogether optimistic. I have reason to believe that with the admirable properties we have in hand, we shall equal, if not exceed, what we have already done. I beg to move:—"That the report of the directors and the accounts made up to June 30 last, presented herewith, be approved and adopted." (Applause.)

The Hon. A. F. H. CAMPBELL seconded the motion, which was carried unanimously.

Mr. W. H. SPEED proposed a vote of thanks to the Chairman and directors, and congratulated the directors upon taking the shareholders into their confidence.

The motion was seconded and unanimously agreed to, and the proceedings terminated.

TINCROFT AND CARN BREA UNITED.

At the meeting of the Tincroft and Carn Brea United, at Carn Brea, Cornwall, on Friday, Mr. F. Harvey in the chair, it was stated that extensive developments were contemplated, which would cost not less than £60,000, and would be carried out without delay. These developments were the suggestion of Mr. John Foster Browne, the consulting engineer, and a very vigorous policy was to be pursued. On the Trestail shaft, Druid's south lode, of Carn Brea, it was proposed to erect a pumping engine and a double horizontal double winding engine, with pumps. The head gear was to be economically fixed with a double skip board, the suggestion being to sink the shaft from the 140 to the 190 fathom level, and open out upon the lode east and west at the 190 fathom level. At Tincroft the work was to be equally progressive. Among other work to be accomplished was that at Cook's Kitchen, and with the utmost expedition the pumps were to be fitted and the mine unwatered. After the water is pumped from the 398 and the 406 fathom levels eastward, these points will be worked with at least three rock drills, and with a premium for speed upon the south lode, to prove and test the south and Dunkin's lodes, and by a crosscut, ultimately Highburrow lode, at the 406 fathom level across the whole of the Tincroft sett. If, as might be reasonably expected, valuable deposits are proved, it may be necessary to sink down Tincroft man engine shaft, and fit it up with modern winding appliances for dealing upon a considerable scale with these resources. All stopes which are not profitable were to be suspended as early as convenient, with due regard to retaining the best of the workmen, and North Tincroft, it was suggested, shall be continued as a mine so long as it can be made to pay its way, and a due proportion upon the establishment charges. The £75,000 capital of the company, will, it was thought, be ample to carry out every detail for the development of the mine. The terms made with the lords, said the Chairman, "are most excellent, and as good as can be expected" from any lords.

ALBION TRANSVAAL GOLD MINES (LIMITED).

The first annual general meeting of the shareholders in the Albion Transvaal Gold Mines (Limited) was held on Tuesday, at Winchester House, E.C., when Mr. Alfred Jones (Chairman of the company), in moving the adoption of the report and accounts, said in the early part of the year Mr. R. J. Gluyas was appointed consulting engineer to the company, and Mr. R. H. Thomas mine manager. Mining operations had been confined to the Albion and Talcose blocks. The ore now ready for stoping in the Albion block amounted to about 14,000 tons. The Talcose block was also being rapidly developed. Results of the assays of ore taken from the various points throughout the mine had been received, and were of a very satisfactory nature. On August 21 Mr. Thomas wrote:—"I like the look of things, and am satisfied with what has been done." Their prospects, he thought, had never been so bright as they were at present. The question of machinery had been discussed by the board, and it was proposed to erect the 20 stamps now on the property near the Albion shaft.—Mr. A. W. Biggs seconded the motion, and it was agreed to.—Mr. Gluyas then addressed the meeting, and in reply to a question said the cost of working the mine was £1 18s. a ton, while the average assay was 1½ ounce.—The retiring directors, Messrs. A. Jones and A. W. Biggs, were re-elected, as also were the auditors, Messrs. G. Von de Linde and Son, and the meeting concluded with a vote of thanks to the staff both in Africa and London.

THISTLE CONSOLIDATED MINES (LIMITED).

The statutory meeting was held on Monday, at the Cannon-street Hotel, E.C., under the presidency of Mr. Bertie Hallett.—The Chairman said that the new company was registered on April 25, and that in pursuance of the wish of the shareholders at a previous meeting, one of the two gentlemen nominated had been elected a member of the board, whilst they were in hopes the other would also shortly join them. The transfer of the properties of the old company, viz., the 104 acres, had been made to the new company. As regarded the operations for the future, he might say that the board had thought it advisable, in view of the increasing value of the Da Kaap District, to obtain some further interest, and in this connection he mentioned that they had obtained 200 claims of a very promising nature on very favourable terms, no cash being payable whatever for them. Their manager had named the claims the Cassandra Block, while to his mind the possibilities were excellent. They had received the following cablegram, dated August 27, from Mr. Newberry, one of the directors:—"Have opened up a large body of low grade ore Thistle, west part of property. The present width is 6 feet. Have secured 300 additional claims on favourable terms. Strong Rand syndicate negotiating for the purchase of same. Sale, which will leave considerable profit to the shareholders, will assuredly be completed. Cassandra reef has been traced right through the properties. Assays 8 dwts. to 30 dwts. Have made arrangements for further options. Kaap claims increasing in value."—In reply to a shareholder the Chairman stated that they had £12,000 in hand, whilst they had another £24,000 to come in from the calls.—A vote of thanks to the Chairman concluded the proceedings.

RAND CENTRAL ELECTRIC WORKS (LIMITED).

The annual general meeting of the shareholders in the Rand Central Electric Works (Limited) took place at Winchester House, E.C., on Thursday, Sir C. Rivers Wilson, G.C.M.G., C.B., presiding.—In moving the adoption of the report and accounts, the Chairman said they were still in the period of construction, the earliest date fixed for the completion of the works being November 20. On August 15 the engineer reported that the works were fast advancing towards completion. The machinery contracted for would be capable of 2100 horse power, and of that they had already placed with the contiguous mines 1200 horse power. Five other companies were also contracting for a supply, and that would absorb our 600 horse power. The charge that was proposed to be made was £45 per horse power per annum, a price which would ensure a very handsome and remunerative return.—Mr. A. Brakham, a member of the local board in Africa, considered that the scope for the company's operations was a very wide one. The demand for the electric current would extend far beyond that required for mining purposes.—Mr. A. Barsdorf seconded the resolution, and it was carried.—Messrs. A. H. Marker and G. Zwelmeyer were re-elected directors, and the auditors, Messrs. Price, Waterhouse, and Co., having been reappointed, the meeting concluded with a vote of thanks to the Chairman.

MINER'S RIGHT GOLD MINING COMPANY (LIMITED).

The statutory general meeting of shareholders in the Miner's Right Gold Mining Company (Limited) was held, on Tuesday last, at 16, St. Helen's-place, E.C.,—Mr. Alexander Scratton, who presided, said that the period which had elapsed since the formation of the company had necessarily been too short for anything considerable in the way of development to be done. The directors were nevertheless convinced that as the work proceeded the property would prove to be a very valuable one. The company was formed to acquire the gold mining lease No. 1586, known locally as the Sowter or Miner's Right, situated on the well-known 28-Mile main reef in the Coolgardie district of West Australia, comprising an area of 12 acres or thereabouts. The position of the Miner's Right was exceptionally good, lying between the Royal Sovereign and the Premier. It was reported upon as containing four reefs, and these were considered to be identical and continuous with those of the Royal Sovereign Mine, which immediately adjoined on the south. From one of these reefs in the Royal Sovereign Mine 21 cwts. of stone, representing the average of the reef, was crushed at Mount Burgess mill, and yielded nearly 12 ounces of gold. A sample of another of these reefs now being worked on the Royal Sovereign was assayed by Messrs. Claudet, and yielded 27 ounces 5 dwts. of gold and 9 ounces of silver per ton. Several shafts were being sunk and the work of development proceeded with, and they had every reason to believe that as further work proceeded they would be more than satisfied with their investment, and that they would eventually be in a position to declare satisfactory dividends.—A vote of thanks to the Chairman terminated the proceedings.

UNITED AFRICAN SYNDICATE (LIMITED).

A general meeting of the shareholders in the United African Syndicate (Limited) was held on Thursday, at Portland House, 72, Basinghall-street, E.C., when Mr. Harry Mosenthal, who presided, in moving the adoption of the report and accounts, in which dividends of 60 per cent. on the ordinary shares, and £92 5s. 1d. on the founders' shares were recommended, said the managers were of opinion that a liquidation of the syndicate, compatible with the most reliable realisation of its assets, was desirable at the earliest possible date. But the proposal would not be put forward at any rate before the shares and other holdings still on hand had been disposed of, or nearly so. Mr. K. F. Wolff was their representative in Johannesburg.—Mr. V. A. Litkie seconded the motion, and it was agreed to.—A vote of thanks to the managers concluded the meeting.

COOLGARDIE CENTRAL (LIMITED).

An ordinary general meeting of the shareholders in the Coolgardie Central (Limited) was held on Thursday, at Winchester House, E.C., when Captain D. C. Mercer, who occupied the chair, said the property acquired by the company was situated on the Hampton Plains Estate, and was 24 acres in extent. Mr. Graves Gifford had been appointed mine manager, and on August 8 he reported that several quartz leaders had been cut, and the country was looking well in both shafts. When a suitable depth was obtained he intended to crosscut with a view of opening up all the lodes on the property. The cost of the two months' mining operations had been £448, and although the London expenses were somewhat heavy in proportion, being £612, he explained that this amount covered 12 months. At present they owed between £1200 and £1300, and to meet this liability a call would be made.—Replying to a shareholder, the Chairman said assays of three samples of stone had been made by Mr. Claudet with the following results:—No. 1 4 ounces 2 dwts. to the ton; No. 2, 25 ounces 13 dwts.; No. 3, 1 ounce 6 dwts. They did not, of course, expect that the 25 ounce assay would be by any means maintained, but would be satisfied with 2 ounce ore, and Mr. Skinner moved the adoption of the report and accounts.—Mr. Davis seconded the motion and it was agreed to.—A vote of thanks to the Chairman concluded the meeting.

VICTORIAN GOLD MINING.

By THOMAS CORNISH, M.A.I.M.E.
Author of "Our Gold Supply."

THE views I have been so long advocating about the importance and value of the Victorian gold mines as the most profitable ones for investment of capital, are being exemplified by the excellent increasing gold returns, as shown by the papers lately to hand. The *Age* says:—"There is every reason to anticipate a phenomenal yield of gold in the colony during the present 12 months. In the quarter ending June 30, the total production amounted to 206,299 ounces of gold. For the half-year the yield was 412,658 ounces 6 dwts. During 1895 the gross yield amounted to 740,086 ounces, half of which would be 370,043 ounces, so that in a rough calculation the increase for the past half-year on the corresponding period of 1895 amounted to 42,615 ounces. Hitherto the yields during the second half of the year has been generally more than those of the first half; but it is estimated that 190,000 ounces will be got during the next six months; the total yield for 1896 may be anticipated at close upon 800,000 ounces. The Mining Registrars estimate the yield of gold for the half-year in the various districts as follows:—Ararat 12,329 ounces, Ballarat 72,791 ounces, Beechworth 47,431 ounces, Bendigo 94,154 ounces, Castlemaine 28,414 ounces, Gippsland 49,326 ounces, Maryborough 36,330 ounces. As compared with the corresponding half of 1895 the yield for the Bendigo district is larger by 22,107 ounces, and Gippsland is greater by 10,617 ounces. The yield in the latter district for the same period of 1893 was 24,565 ounces, so that the production of gold has more than doubled in three years."

As an instance of how profitable some of the mines on various fields are I may mention—The South German Maldon milled 3250 tons for 4195 ounces of gold last quarter. Dividends £9000, a jump of £4800 on the previous three months. Three years' stone in sight, and the company should make its best record this year.

St. Mungo, Bendigo, six months' milling, 8367 loads, 2466 ounces 11 dwts. Dividends £4200. A consistent mine, and from appearances the new term should clean up equally as well.

New Moon, Bendigo, past half-year's milling 7877 tons for 2923 ounces 12 dwts., averaging 7 dwts. 10 grains per ton. Stone mined and milled for 17s. 6d. per ton, a price that will compare favourably with any of the economically managed Rand mines. Dividends 2s. per share.

The Old Lady Barkly keeps on stamping out dividends from very low grade stone, averaging 6 dwts. 13 grains per ton. Milled 8379 tons for 3659¾ ounces. Dividends to date, £102,815 on a capital of £5783.

Long Tunnel Extended, Walhallah, is the sort of dividend mine to invest in. Six months' crushing, 6663 tons for 11,075 ounces. Dividends £25,000, making an aggregate of £328,320 on a capital of £57,600. Reef averages from 18 inches to 6 feet, with many years' stone yet to break, and the reef making strong under foot.

South Star, Ballarat; deepest level 2000 feet. Now working at different levels from 720 feet; are making good average returns. Last crushing, 1025 tons for 495 ounces 6 dwts. Declared its 11th 6d. dividend. When the company gets their new battery at work the yields of gold will be materially increased.

Among some of the mines likely to come soon into favour are Bendigo Consols, Tarnagulla. Good progress is being made below at the 900 feet level south, where stone is making strongly underfoot. Water in No. 2 shaft going down. This mine, which stood idle for many years, was one of the richest reefs ever opened in Victoria. The yield of gold taken out from the rich shoot of stone, 500 feet in length, and about 430 feet in depth, was estimated at £1,340,000 sterling.

The Great Buninyong Gold Estate will soon be in gold in both the alluvial and quartz shafts. This company has a lease of nearly 1000 acres, with six quartz lodes traversing its length, in all over 6 miles, in addition to 3½ miles of alluvial leads to work. The last report says:—"Making good progress with plunger chamber at alluvial shaft; sunk 12 feet, full depth 242 feet; country at foot slate and sandstone. At quartz shaft water lodgment in 11 feet in hard blasting country. Hope to complete this work about expiration of week." This property is on the southern continuation of the belt of quartz reefs traversing north and south through Ballarat East from the Black Hill to Buninyong. The great value of the property has been formed by its former partial developments some 25 years ago, when the old company raised 87,067 ounces of gold, value £349,249 10s. 8d., and paid in dividends £140,000 sterling.

The Lord Nelson Company, on the St. Arnaud gold field, is one of the good dividend-paying mines. It holds a large area of ground, with shaft down to over 1200 feet. The works are being carried on the 1030, 1110, and 1210 feet levels. The half-yearly report states that they had raised and crushed from all parts of the mine for the 11,070 tons of stone, which yielded from the battery 4600 ounces, and have ground sand from same yielding 916 ounces 7 dwts. of gold, making a total yield of 5516 ounces 7 dwts. Pyrites treated 200 tons 14 cwts., yielding 546 ounces 6 dwts. 7 grains. Value of gold £19,072 11s. 9d. Out of which, expenses and dividends were paid as follows:—By wages £8647 8s. 6d., firewood £1350 13s. 7d., mining stores £887 5s. 9d., machinery repairs and renewals £484 17s. 2d., plant account £103 3s. 11d., management £78, directors' fees £50, miscellaneous £58 11s. 7d., law costs £39 18s. 6d., lease rents £11 13s. 7d., cartage £11 5s., dividends £6300, balance in hand June 30 £1012 11s. 2d.

It should be observed that the economy of management in this, as in most Victorian gold mines, is an important feature—the cost of management being only £78, or (say) £3 a week, and the directors fees £50 for the half year. This mine averages a little over ½ ounce of gold per ton, and working at great depths of from 1000 to over 1200 feet in depth, by good management and economy pays over one-third of the gross yield of gold in dividends. An example for many companies to follow. This is one of the good steady dividend mines of Victoria that I so often call the attention of investors to go into. Many other similar properties are lying in abeyance for want of capital and careful management to make them dividend mines. The average production of gold from Victoria will be now over £3,000,000 sterling annually. As I have frequently pointed out, it might soon be doubled if proper attention be given to the industry, which is the most legitimate as it is the most profitable in the colony.

New discoveries are being made daily, and the gold mining industry never looked better than it does at the present time. I strongly advise sticking to a good record, and Victoria stands a long way to the front with its record of £260,000,000.

LATEST FROM THE MINES.

CABLEGRAMS AND TELEGRAMS.

ALASKA MEXICAN.—Cablegram from Alaska reports the clean up for the month of August as follows:—"Period since last return 31 days. Bullion shipment, $16,619. Ore milled, 9263 tons. Sulphurets treated, 132 tons. Of bullion there came from sulphurets, $5998. Working expenses for period, $14,094."

ANGLO-MEXICAN.—The total output of the mine for the month of August is as follows:—$52,000 bullion; $2000 concentrates; U.S. gold coin, 1600 tons; 28 days run.

BAYLEY'S REWARD CLAIM AND BAYLEY'S REWARD No. 1 SOUTH.—Cabled advices have been received from these companies' head offices in Melbourne that the resolutions for the amalgamation of the companies have been unanimously approved at meetings held on the 21st instant in Melbourne. Subject to such resolutions being confirmed at meetings to be held in Melbourne on the 8th proximo, the transfer books of both companies will be finally closed on and after that date.

BEVOIS WESTRALIAN SYNDICATE.—A further cable has been received from the manager at the mines as follows:—"In the main shaft the gold contents is increasing. Trial crushing could be made here soon."

BLOCK A RANDFONTEIN.—The reef is being developed, and levels are being opened up throughout this property, which adjoins that of the Robinson Randfontein Gold Mining Company (Limited). The assays average 4 ounces per ton, taken from 41 samples.

BLUE SPUR AND GABRIEL'S GULLY CONSOLIDATED.—The manager telegraphs result of his wash up for the quarter as 677 ounces of gold.

BROOKMAN BROTHER'S BOULDER.—A cable has been received from Mr. George Brookman who is visiting the mine:—"Jane shaft, 150 feet level, have struck a rich body of ore; shall begin at once to erect a 10 stamp mill."

BAKER'S CREEK.—Result of crushing, September 21:—465 ounces retorted gold.

CENTRAL BOULDER GOLD MINE.—Cable from the mine manager, dated September 19:—"Cut lode at 150 feet. Stone shows visible free gold. Think Australia lode."

CENTRAL CHILI COPPER.—The directors have received the following news from their manager at Panulcillo by cable:—Result of work for month of August: Mines produced 1500 tons; ores brought 1500 tons; ores smelted 3050 tons; regulus produced 337 tons; net profit for month, £990. Memorandum.—The new manager, Mr. Richards, arrived at Panulcillo on August 10, and took over the management two days later.

CONSOLIDATED DEEP LEVELS.—The Exploration Company, as London agents, have received the following cable from Johannesburg:—"The directors authorise an interim dividend of 30 per cent., shareholders registered September 28."

CONSOLIDATED MURCHISON.—Crushed 940 tons; 406 ounces of gold.

CRESCENT.—The London office has received the following cablegram from Mr. T. G. Davey, dated September 19, giving result of crushings for the past two months:—"August, Victory 350 tons 80 ounces. September, Victory 88 tons 53 ounces. Crescent 350 tons 103 ounces."

DAY DAWN BLOCK AND WYNDHAM.—The following cablegram has been received from the general manager at Charters Towers, giving the return for the fortnight ending 19th inst.:—"Tons crushed, 1340. Ounces gold, 788. Approximate value, £2725. Fortnight's expenses, £2190." The general manager adds:—"I think the returns are likely to improve."

EAST MURCHISON UNITED.—The following cable has been received from an independent source:—"Crushing in first rate style, developments opening up splendidly."

HANNAN'S OROYA.—Cablegram from Mr. Gray, M.E., dated Kalgoorlie, September 19:—"Oroya. Struck rich chute of ore lower level, 187 feet."

HIGHLAND CHIEF.—Cable from their mine manager:—"Highland south. West vein reef has been developed to a depth of 38 feet by a shaft on the vein. Stone very rich."

HANNAN'S STAR.—A cablegram received on the 21st from the mine superintendent stated that a body of ore had been cut assaying 2 ounces of gold per ton of ore in the west crosscut from James's shaft. Information since received shows that the body of ore referred to is the Boulder lode, and that where met with it has a width of 6 feet.

HANNAN'S SIR JOHN FORREST.—The subjoined cable is to hand from the manager, Mr. J. Woolcock:—"Since last report the main shaft has been sunk 4 feet, total from surface, 193 feet; also close timbered 30 feet. The western crosscut has been advanced 16 feet, total from shaft 54 feet.—No. 2 shaft. In the drive north on the lode stopes are looking better. Shall stop work on the cross course and put hands in No. 2 north drive. At No. 3 shaft the crosscut east has been extended 10 feet, total 18 feet from shaft."

HANNAN'S REWARD.—At a meeting of the board held on Wednesday it was decided to order forthwith a stamp battery.

HARRIETVILLE.—This company has received a cablegram from the mine, dated September 19, giving the result of crushing for the past two months as follows:—"August, 100 tons 92 ounces. September, 100 tons 80 ounces."

IMPERIAL WESTERN AUSTRALIAN CORPORATION.—A cablegram received from Roeborne states that the reef has been struck at the bottom of the new shaft which has been sunk in accordance with Mr. Brenton Symons' instructions on the Pioneer lease at Pilbarra, and that further information will be forwarded at once.

JACKSON EXPLORATION AND DEVELOPMENT.—The following cablegram has been received from the company's solicitor in San Francisco:—"Supreme Court gave decision in our favour in both cases.—Neale." Office note.—The two cases referred to are—(1) The forcible entry and detainer case (the present decision again confirming the company in the possession of their property), and (2) an action brought against a Dr. Bardue to enjoin him from mining Amador Queen No. 2 and trespassing on the grounds of Amador Queen No. 1.

LADY MAUDE.—The following cablegram has been received from the manager:—"Everything is proceeding favourably.—Surprise main shaft. Have cut a lode in crosscut. The quartz is 11 feet 6 inches wide, and will average about 16 dwts. per ton."

LAKE VIEW AND BOULDER JUNCTION.—The following cablegram has been received from Mr. George Gray, the general manager, dated September 18:—"I am pushing on developments. The mine is looking very well. In Brookman's Boulder lease, adjoining to the south, rich ore has been cut at 150 feet deep. We are crosscutting to pick up the same lode close to eastern boundary. We are preparing to sink shafts at two of the principal points to a depth of 200 feet. I advise the purchase of steam hoisting engines with all the necessary plant."

MENZIES CRUSOE GOLD CLAIMS.—Cable information has been received from the manager at the mines to the following effect:—"There is no change to report. The stopes generally are looking fair. The foundations for machinery are being proceeded with."

MYALL'S UNITED.—Translation of cable received from Mr. N. M. Cohen, dated Sydney, September 18:—"Have struck high grade ore driving south, the deepest workings. The width of the reef is 11 feet."

MOSMAN.—Cablagram from the manager at Charters Towers:—"Have resumed sinking Wyndham shaft. The shaft is free from water, and good progress is being made."

MOUNT GREENOCK GOLD ESTATES.—The subjoined cable information is to hand from the manager:—"No. 4 bore has bottomed 89 feet from surface; shows wash dirt 3 feet thick."

MYNPACHT RANDFONTEIN.—A shaft has been sunk on this company's property, and drives are being made on the reef.

MOUNT HEPBURN.—The following cable has been received from the mine manager:—"22 assays, average 17 dwts. to the ton."

MONASTERY DIAMOND MINES AND ESTATE.—Cable advices state that 147 loads washed, yielded 17 carats.

NEW CHUM (Bendigo).—Cable:—"Since last report the winze from No. 7 level 110 feet east of shaft has been sunk 20 feet. The reef in the north drive No. 6 level continues to improve."

NORTH RANDFONTEIN.—This company will commence crushing with 60 stamps about the end of October.

OURO PRETO.—This company has received a cablegram giving the August returns as follow:—"Passagen Mine, 3954 tons produced 1603 ounces. Rapopos Mine, 139 tons produced 22 ounces."

PAHANG CORPORATION.—A cablegram has been received, giving returns for the month of August as follows:—"Jeram Lumpong Mill. In 25 days of 24 hours each 1005 tons of stone were crushed producing 42 tons of black tin; 20 head of stamps running; working costs (including development) $11,750.—Jeram Batang Mill. In 25 days of 24 hours each 800 tons of stone were crushed producing 32 tons of black tin; 20 head of stamps running; working costs (including development) $7500."

PAMBULA.—The company have received the following cable:—"Struck a very rich body of ore in the north end."

PICK O' THE FIELD GOLD MINES.—The directors are in receipt of the following cable from the manager:—"Erection of machinery will not be completed and running until October 6."

PORGES RANDFONTEIN.—The mill has just been restarted with 40 stamps to set the plates, and on October 1 the full number of 60 stamps will be running.

QUEEN CROSS REEF.—Messrs. A. Durant and Co., the London agents, have received a cablegram from the head office in Charters Towers advising clean up, including grindings of 77 tons for 548 ounces of gold, making a total crushing of 1137 tons for 3826 ounces of gold. Approximate value, £13,200.

RANDT GOLD.—The consulting engineer to the company on August 24 last reported as follows on the work done, and results during the month of July:—241 feet 6 inches driven and sunk, exposing 5483 tons of ore, of the average value of 13·08 dwts. (in fine gold) in the mill bins, over an average thickness of banket of 25·8 inches.

RANDFONTEIN ESTATES GOLD.—The London agents (Robinson South African Banking Company, Limited) have received cable advices from the Randfontein Estates Gold Mining Company (Limited) that the Randfontein reef has been struck throughout the whole length of Block B, the assays averaging 4 ounces 15 dwts. per ton. The reef is now being traced into the adjoining Block A. These two blocks will be seen, on reference to the general plan of the Randfontein Estates Gold Mining Company (Limited) properties to be situated south of the Porges Randfontein Gold Mining Company (Limited), and they have not yet been formed into separate companies. On Blocks C and D the reef is also being opened up, and has been traced as far as Block G. These blocks, on reference to the plan, will be seen to be situated to the north of the Mynpacht Randfontein Gold Mining Company (Limited), and they have also not yet been formed into separate companies.

ROBINSON RANDFONTEIN.—The machinery is in course of erection. The reef has been well-developed, and by the time the mill is ready to start there will be several levels opened up and ready for stoping the full length of the company's property about 3000 feet. The reef assays very high on this property.

ROSE PEARL GROUP.—The Government assayer reports to Mr. F. Illingworth, member of the Legislative Assembly (the company's representative) as follows:—"I have carefully assayed in duplicate the two bags of stone received last month. The contents were all crushed together, and gave a return of 26 ounces 19 dwts. 22 grains gold to the ton."

SAN SALVADOR SPANISH IRON ORE.—The ss. *Sally* sailed from Santander on the 19th inst., with 1620 tons of this company's ore for Glasgow.

SPITZKOP FARM.—Information has been received from the mine that the reef existing in the north-west corner of the farm is a continuation of Glynn's, Lydenburg, and has been traced by drives and cuttings for about 1 mile. This is quite independent of the dolomite reef now being worked.

SOUTH BENDIGO.—The directors are in receipt of the following cable from the manager:—"Since last report the main shaft has been sunk 20 feet, total from plat 242 feet, and from surface 1032."

SOUTHERN NEW CHUM.—The directors have received the following cable information from the manager, Mr. L. A. Samuels:—"Since last report the main shaft has been sunk 20 feet, total from plat 207 feet, and from surface 367 feet. At No. 1 level (187 feet from surface) am driving north on the Lawrence reef; opening up for stoping (crushing) purposes; reef is opening out very promisingly showing specks of free gold."

WESTERN AUSTRALIAN DEVELOPMENT CORPORATION.—The following cablegram has been received from the mine manager:—"Dorothy reef proved to a depth of 70 feet, assay value 2 ounces to the ton; about to commence crushing."

WHITE HORSE.—The company are in receipt from their representative in the colony of the following cable, dated September 21:—"White Horse struck a very rich body of ore driving north, south shaft."

WAIHI.—Bullion return for 28 days ending September 19, £12,100 from 2850 tons.

WHITE FEATHER MAIN REEF.—The following is an extract from a cablegram received from Mr. N. W. Harper, the manager, under date September 25:—"A thorough trial of the machinery made yesterday afternoon, running most satisfactorily." This refers to the commencement of crushing already announced.

WESTERN AUSTRALIAN DEVELOPMENT CORPORATION.—The following cablegram has been received from the mine manager:—"Dorothy. Width of the reef on the 30 feet level is 2 feet, on the 70 feet level 3 feet. Water level has been reached on adjacent property at 130 feet. Plenty of valuable timber."

THE NEW BULLFONTEIN MINING COMPANY.—Certificates in respect of shares issued under the terms of the circular dated June 3, can now be obtained at the office in exchange for the receipts.

HAMPTON PLAINS ESTATE.

AN ENCOURAGING REPORT FROM THE DIRECTORS.

THE report of the directors of the Hampton Plains Estate (Limited), with accounts to March 31 last, to be submitted to the first general meeting to be held in London on 1st proximo, states that the period covered comprises the first 18 months of the existence of the company, which took over the operations of the Hampton Lands and Railway Syndicate for nine months previous to issue of the prospectus. A large proportion of this period was occupied in organising a competent staff in Australia, in making all necessary arrangements with managers, engineers, and others whose services were indispensable for the proper exploration and development of so large an estate, and the directors adopted the policy of granting prospecting licences to influential corporations, in order by that means to get the estate prospected without undue expense to the company. There has been partial prospecting of portions of the estate by some of the companies to whom prospecting licences were granted, but as the directors felt that prospecting by such means would only cover a comparatively small extent of country, they determined as soon as practicable to throw open certain portions of the estate for general prospecting by miners. Up to the present time one block has been so thrown open, and the directors await the result of this before throwing open other blocks. The directors found that the £50,000 provided for working capital would be inadequate to develop the freehold mineral lands alone (amounting to 216,000 acres), without taking any account of the pastoral lands (amounting to 1,216,000 acres). The directors, therefore, determined that the best course would be to endeavour to sell off the outlying portions of the estate to companies which had the capital to develop them, and this determination was communicated to the shareholders in April, 1895. In the result this plan has proved eminently satisfactory, and several sub-companies have been formed to work the blocks sold. Particulars of these were given in May last, but three blocks only were disposed of prior to March 31, and receipts from these only are included in the accounts. The total additional working capital which has thus been provided for amounts to £155,000, available for the purpose of developing the mineral resources of portions of the company's original estate, which, if not sold in this manner, could not possibly be so rapidly developed. The company has not parted with the whole of its interest in any of these blocks, for in every case it holds a large proportion of the shares, and must consequently benefit by any discoveries or developments which may be made thereon. The blocks dealt with in the above manner are the following:—Block 45. Acres, 18,880; capital, £225,000; subscribed working capital, £50,000.—Block 50. Acres, 8000; capital, £200,000; subscribed working capital, £25,000; reserve working capital, £25,000.—Block 42. Acres, 13,480; capital, £150,000; subscribed working capital, £15,000; reserve working capital, £25,000.—Sold prior to March 31. 40,360 acres for £90,000.—Block 40. Acres, 7680; capital, £140,000; subscribed working capital, £20,000; reserve working capital, £20,000.—Block 32 Acres, 21,077; capital, £150,000; subscribed working capital, £25,000; reserve working capital, £25,000.—Blocks 35, 37, and 39. Acres, 7420; capital, £120,000; subscribed working capital, £20,000. Sold subsequent to March 31, 36,177 acres for £65,000. Total, 76,537 acres; total working capital, £155,000. The capital of £155,000 set aside for development is independent of the capital raised by the Coolgardie Waterworks Company, to whom a grant of land and water rights was made, and in respect of which the company holds a large number of shares. The net result of the company's operations, including the sales and grants above referred to, is set out in the accounts, and it will be seen that the period covered has been one of expenditure, as is invariably the case when the business in hand is the development of a large estate. The accounts show that the total expenditure has amounted to £49,000, the greater portion of which has been charged to profit and loss account, although it would have been justifiable to carry a considerable amount of this to capital account. It will be thus seen that the expenditure practically exhausted the £50,000 originally provided for working capital, and it has only been in consequence of the adoption of the above policy that the directors have been able to expend more than the original working capital of the company, and yet finish the period with a balance of £23,000 in hand. The accounts show a cash debit of £10,292, and a credit share balance of £327,000, a net credit (if all shares be valued at par) of £316,708. The directors do not think they are justified in considering the latter as "profit" until realised in cash, and as no sales had been attempted at March 31, they do not consider that any cash profit had been made at that date. Since March 31, however, a considerable number of shares have been sold at par, and there is no doubt that by June 30 a large cash profit had been made, but in calculating the profit it must be borne in mind that the shares which have been received and sold are the result of the sales of portions of the estate, and it consequently becomes a question as to how much should be credited to capital account, and how much should be treated as profit. The opinion of two firms of auditors was sought on this point, with the result that both agree that the capital value of the land sold up to March 31 was £60,000, which sum has been adopted in the accounts. The main portion of the estate, which is still held by the company, comprises 139,463 acres, which is composed of four contiguous blocks adjacent to Coolgardie, and south-west of Hannan's. It is not the intention of the directors to sell any of these blocks, but to energetically develop them by every means in their power, such as construction of tramways, boring for water, searching for gold, granting of mining licences, sale of mining claims, &c. This will involve a large expenditure of capital, and the directors believe that the outlay will be abundantly repaid, but it is manifest that if the directors distribute the proceeds of all the shares sold, the company will be left with very insufficient working capital, and after serious consideration the directors have come to the conclusion that the proper course for the present is to keep all profits in hand for the purposes set out above, and to repay that part of the original capital represented by land sold, which in this case amounts to nearly 4s. per share. The directors accordingly do not recommend the payment of any dividend, but propose to repay 4s. per share on capital account, which will absorb a sum of £70,000, being £10,000 more than the sum applicable to capital account as certified by the auditors. This will leave about £65,000 cash in hand to carry on operations, in addition to the shares in the various sub-companies above mentioned. As regards the estate itself, the directors are more than gratified at the numerous discoveries of gold which have been made, and at the manner in which the reefs have been proved to exist at depth in cases in which the sinking has been proceeded with. A member of the staff of Messrs. Bewick, Moreing and Co., the company's mining engineers, is entirely occupied in the affairs of the company, and gives most satisfactory accounts of the developments. Mr. Lapage, one of the Hampton Plains Estate directors, has recently visited the estate of the Coolgardie Waterworks (Limited), and inspected the works being erected for the above company. He has formed a most favourable opinion of the capability of the company to supply Coolgardie and the neighbouring mines with water. Mr. Charles Chandler, the manager and engineer of the Waterworks Company, estimates the revenue from the plant now being erected for supplying the mines from salt water alone at £32,600 per annum, and estimates that this revenue can be doubled by the erection of additional plant. From wholly independent reports received from the engineers to companies which have purchased portions of the estate, and from the report of the engineer of the Indian and Colonial Gold Fields (Limited) (which company is only concerned as a shareholder in the Hampton Plains Estate), the directors venture to think that all will come to the conclusion that the property only requires time to prove its great value.

COMPANY FINANCE.

Reports, Balance Sheets, Dividends, &c., of Mining and other Companies.

GIBRALTAR CONSOLIDATED GOLD MINES (LIMITED).

Mr. A. Hoffnung, the Chairman of the Gibraltar Consolidated Gold Mines (Limited), who has recently visited the company's property in New South Wales, has sent home a letter in which he expresses a very favourable opinion of the prospects of the mines. "Gibraltar Hill," he states, "now presents a very striking appearance, and offers abundant evidence of the progress of a great enterprise. The four main shafts . . . surrounded by a great heap of auriferous ores and mullock, all afford abundant and eloquent testimony to the labour which has progressed below." Mr. Hoffnung expresses himself as highly satisfied with the arrangements being made for crushing the ore, and concludes by saying that "there is every prospect for the fulfilment of the sanguine expectations originally formed of the undertaking." By the same mail a letter was also received from Mr. M. Eissler, who accompanied the Chairman of the company on his visit to the property. Mr. Eissler's letter contains the following statements:—"I find that at Radcliff shaft we have now between 600 to 700 tons of ore at grass, which I am certain will average 3 ounces per ton. The difficulty I desire to overcome is to get the ore out of the mine fast enough to supply the battery steadily with 1000 tons of 3 ounce stone monthly. This could be accomplished if I had 3000 tons at grass by the time the battery starts, as this would allow me to take every month 500 tons from the dump, and 500 tons which could be mined from the stopes. With 3000 tons of ore on the dumps, I need only raise 500 tons a month and take 500 tons a month from the dump, and I can, therefore, crush steadily for six months without rush or mistakes and give you the desired output of gold. During these six months the developments of the mines will be going ahead, the working force will be broken in, and everything will be so regulated as to raise 1000 tons of ore after July 1, 1897. The erection of the battery is going forward steadily, and I expect the same will be completed some time in December. The framework for the stamps will be finished in the course of a few days, and has come out in first-class order, and fits well together. Should at any time it be required to enlarge the battery to 40 stamps, the excavation is large enough for this number of stamps, and if no provision could have been made now it could never have been done afterwards. As to the mine, I am able to say that the north drive going towards the Sir Henry Parkes on the 160 feet level shows a decided improvement. When I recommended the purchase of the above claim the leader was the size of a carpenter's pencil, now it is 6 inches wide, of very fair looking ore, and we all anticipate the beginning of a new make of ore. On the 40 feet level the reef was thrown out of its course by a dyke; we have broken through the dyke, and in the face is a splendid reef 2 feet in thickness. Up to the throw we had comparatively easy country, but beyond the bar the hard granite came in, and it is here that we are working with one drill. The winze going down from the 40 feet level is also on a 20 inch reef of 3 ounce stone, and keeps this size for the whole length of the winze. On the 230 feet level north the reef in the face of the drive is small and of a lower grade ore. We have some stoping down above the 230 feet level south, and the rich ore goes up in these stopes. On the 350 feet level the reef has been shot down, and the last 20 feet right up to a bar show that the same is narrow and low grade. We are driving now through the bar, and will let you know how matters look beyond the same in the north drive.—(Official Note. Advice by cable since the date of this report states that good ore has been found at the lowest level.) I will also mention that we are stoping a little above the 160 feet level north going towards the Sir H. Parkes, and we have here a splendid reef. This is all the work we are doing on this reef. The cross cut shows a reef 104 feet in and 204 feet in."

THE HARMONY GOLD AND LAND COMPANY (LIMITED).

Some particulars of this company have been published during the past week, drawing attention of the public to the fact that the property owned by the company consists of 10 freehold farms, four of which are in the neighbourhood of Pietersburg, and four others in the Waterburg district, close to the line of railway now under construction, the whole having an area of about 50,000 English acres (approximately 73 square miles). On one of these—Sterkloop—will be the railway terminus of the Pretoria-Pietersburg line, which is naturally looked upon as greatly enhancing the value of the farm and the prospects of the company. On another farm—Palmietfontein, situate about 2½ miles from the company's farm to Reitfontein—much gold has been found, whilst prospecting operations have been carried on in all the other farms and the immediate neighbourhood. The company further owns a lease over 11 farms, containing about 76,800 acres (approximately 120 square miles) in the Zoutpansburg district, through which runs the Murchison range. The lease is in perpetuity, at a rental of £1100 per annum, the 11 farms being situated on the northern portion of the well-known Harmony block. The lease conveys the entire mining rights entitling the company to select the mynpachts on all these farms and to receive half the diggers' licenses paid to the Government when the farms are declared public gold fields. These farms are declared public gold fields as soon as they have been thoroughly prospected. On the completion of this railway the company's property will be within a few hours' journey of the port of Delagoa Bay.

ISLE OF MAN MINING COMPANY.

The report of the directors, to be presented at next Tuesday's meeting, states that the result of the year's working, though very satisfactory as a whole, has not proved as much so as was at one time anticipated. The extraordinarily dry spring and summer interfered greatly with the dressing operations, and it was consequently found impossible to prepare for sale the anticipated quantity of ore. The drivings of the 260 and 275 fathom levels west have not proved as remunerative as was expected; and during the last quarter the price of ore sold has fallen 11s. 10d. per ton, partly owing to the fall in the lead market and partly to the quality of the ore raised. These things combined have adversely affected the profits for the year. The directors, however, feel that considering the difficulties with which he has had to contend, great credit is due to Captain Kitto, in consequence of whose great exertions the deficiency of output has been comparatively small. The ore raisings have been 4550, as against 4700 tons in the previous year, and the profit is £9762 15s., as against £10,109 14s. 2d. in the previous year. £1000 has been carried, as usual, out of profits to the reserve fund for the redemption of bond debts, and £500 to the new works account. The directors recommend that a dividend at the rate of 11 per cent. on the ordinary share capital of the company (of which 9 per cent. has already been paid by the directors in anticipation) be declared; also that a dividend at the same rate of interest on the preference capital (of which one half-year at the rate of 7½ per cent. has already been paid on account) be declared. The directors have been in communication with the Office of Woods, with the view of obtaining some assistance towards the cost of sinking Bawden's engine shaft, which it is necessary now to resume, and are glad to be able to report that the application has been successful, the Office of Woods having agreed to allow £300 per annum for five years, upon certain conditions.

THE OOREGUM GOLD MINING COMPANY OF INDIA (LIMITED).

The following is the half-yearly report of the directors to the shareholders:—The directors beg herewith to present the superintendent's half-yearly report to the end of June last. Mining and milling operations have been affected by an outbreak of cholera, causing the amount of work accomplished during the six months to fall somewhat short of the average. Fortunately, however, the epidemic was speedily checked, and now all signs of cholera have disappeared from the field. The condition of the mine remains without material change since the date of the issue of the last annual report six months ago. Taylor's and Wallroth's shafts at the respective depths of 1035 and 1245 feet have not yet got through the poor section of ground previously referred to, but there are indications of an improvement in Wallroth's shaft. In that shaft a vein of quartz has been recently intersected. It is small, from 6 to 8 inches wide, and the quartz is of low grade, but the vein is encouraging in appearance, and the directors are watching its development with great interest in the hope of an improvement shortly both in size and value. The reserves of ore remaining in the mine are estimated at 65,111 tons. This shows a decrease of 5377 tons, which is partly accounted for by the increased quantity of tons crushed as compared with preceding half-years. The mill results are satisfactory, showing that the total quantity of gold produced during the six months was 35,887 ounces, of the value of £134,881 19s. 1d., or an increase on the results of the corresponding six months of the previous year of 1945 ounces, of the value of £7947 6s. 10d. The following tabular statement furnishes full particulars of the monthly results:—

Period.	Quantity of stone stamped.	Bar gold produced.	Quantity of tailings treated.	Bar gold extracted.	Total bar gold produced.	Standard gold.	Net amount realised.
1896.	Tons.	Ozs.	Tons.	Ozs.	Ozs.	Ozs.	£ s. d.
January...	5207 ...	5080 ...	5137 ...	1100 ...	6180 ...	5,938·203 ...	23,124 5 1
February.	4973 ...	5169 ...	4891 ...	1001 ...	6170 ...	5,933·262 ...	23,086 4 7
March ...	5338 ...	5118 ...	5175 ...	939 ...	6057 ...	5,866·637 ...	22,827 1 5
April	4924 ...	5197 ...	4989 ...	922 ...	6119 ...	5,922·465 ...	23,039 17 11
May	5012 ...	5051 ...	5081 ...	978 ...	6029 ...	5,851·095 ...	22,758 8 11
June	4230 ...	4414 ...	4255 ...	918 ...	5332 ...	5,150·388 ...	20,044 1 2
	29684 ...	30029 ...	29328 ...	5858 ...	35887 ...	34,662·050 ...	134,881 19 1

Since April last, when the final dividend for the year 1895 was paid, an interim dividend has been distributed on account of the current year's profits of 2s. per share on the ordinary shares, and 4s. per share on the preference shares, amounting together to £38,100. The next interim dividend is due in December.

SUTHERLAND REEF (LIMITED).

The directors announce that about 207,000 of the ordinary shares have been applied for by the shareholders of the old company, and that the balance have been taken by the guarantors. The first batch of allotment letters have been posted, and the remainder will follow without delay. The holders of about 20,000 of the 22,000 preference shares having accepted preference shares in the new company, the latter will have a working capital of about £45,000.

— Certificates of the OCEANA CONSOLIDATED COMPANY (LIMITED) are now ready to be exchanged against certificates of the Oceana and Austral-African Companies (Limited), and Africana (Limited) at the offices of the Oceana Consolidated Company, 13, Austin Friars, E.C.

— The half-yearly general meeting of the WEMMER GOLD MINING COMPANY (LIMITED) will be held in the board room on the mine on October 12 at 3 p.m., the business being directors' report, balance sheet, &c., as usual.

— ALBERT MINES SYNDICATE.—The directors have declared an interim dividend of 100 per cent. to all shareholders on the books of the company on October 1st next, payable in shares of the Herbert Gold (Limited). The distribution will be made immediately after the annual general meeting.

ON and after Monday, the 28th inst., the offices of the following companies, viz.:—The North Boulder Gold Mining Company (Limited), the North Boulder East Block (Limited), the Easter Gift Proprietary Gold Mine, East Wealth of Nations Gold Company (Limited), and Mount Hepburn Gold Mine (Limited) will be removed from 18, St. Helen's-place to No. 1, St. Helen's-place, E.C.

WE are officially informed that the offices of the Mount Prophecy and Perseverance Gold Mines (Limited), the Western Australian Steam Packet and Transport Company (Limited), and the Electrical Development and Finance Corporation (Limited) will on and after the 29th inst. be at 57, Moorgate Street, E.C., instead of 24, Coleman Street as hitherto.

OBITUARY.

It is with much regret that we have to record the death, at the ripe age of 69, of Mr. Edward Rowse, who for a great number of years was in the employ of the eminent firm of Messrs. John Taylor and Sons, which event took place at his residence, Castano House, Abbot's Langley, on the 12th inst. Mr. Rowse was born at Kenwyn, Cornwall, on November 7, 1826. His first appointment was with his father, at the age of 18, in France. From France he went for the same firm, Messrs. John Taylor and Sons, to erect pumping and other machinery at a gold mine in North Carolina. On his return from North Carolina he was sent to Frongoch, one of the group of mines in Cardiganshire, known as the Lisburne Mines, then and for many years afterwards under the management of Messrs. John Taylor and Sons. From the Lisburne Mines he went for the same firm to the Ganther Lead Works, Bristol, and from Bristol he filled an appointment at the reduction works of the La Belle Raquel Company (Limited), Province of Guadaljara, Spain. Here he remodelled and erected for the same firm the machinery at those extensive, and, in those days, important works. He went to the La Belle Raquel Company's works in the year 1848, and left in the year 1878. During a great part of this time he was superintendent of the works. It may be said that he was nearly the whole of his lifetime in the service of Messrs. John Taylor and Sons, and was universally esteemed and respected by all he came in contact with.

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NOTICE IS HEREBY GIVEN, that the CAPITAL of this Company has been increased to £300,000, and shareholders are informed that they have the right of applying for 1 New Share in respect of every 14 Shares held by them on the 30th September, 1896, at the price of £5 per share.

The whole of the issue of 20,000 shares has been guaranteed at £5 per share.

Applications will be received by the Company's Bankers, Messrs. Glyn, Mills, Currie, and Co., 67, Lombard Street, London, E.C., not later than the 10th October, 1896.

Application forms and full particulars will be sent to registered shareholders, or can be obtained of the London Agents.

Transfer Books will be closed from the 30th September to the 6th October, both days inclusive.

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London Agents,
THOS. HONEY, London Secretary.

7, Lothbury, E.C., September, 1896.

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DIARY.

Monday, September 28.

Morgan's Syndicate, Winchester House, 12.
South Swaziland Gold and Exploration, Winchester Ho., 12.30.

Tuesday, September 29.

Triumph Hauraki, Winchester House, 11.30.
Kauri Freehold Gold Estate, Winchester House, 1.

Wednesday, September 30.

Mona Gold Mines, Winchester House, 12.
Kootenay Promotion Syndicate, Cannon Street Hotel, 12.
Lady Mary Amalgamated, Winchester House, 2.30.
Lefroy Gold Mines, Cannon Street Hotel, 2.30.

Thursday, October 1.

Golden Gate of California, Winchester House, 11.30.
Caratal Mining Company, Winchester House, 12.
Hampton Plains Estate, Cannon Street Hotel, 12.
McCulloch Coolgardie Gold, Cannon Street Hotel, 1.30.

The Mining Journal,

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"*" ADVERTISEMENTS (which should in all cases be sent direct to THE BUSINESS MANAGER) can now be received for the forthcoming issue of THE MINING JOURNAL, RAILWAY AND COMMERCIAL GAZETTE, on FRIDAY, at 18, FINCH LANE, E.C., up till 6 p.m., and at 3, DORSET BUILDINGS, SALISBURY SQUARE, E.C., until 9 p.m.

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Codes used: "A.B.C.," Moreing's, and "Universal."

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LONDON: SEPTEMBER 26, 1896.

ENGLISH AND FOREIGN MINING EXPERTS.

NO one who has followed the recent history of metalliferous mining can have failed to be struck by the very large extent to which foreign mining engineers have been given the leading position in the technical direction of mining ventures carried out by British capital. In this respect something like a revolution has taken place in the conduct of this branch of enterprise. A few years ago the financier in London who had taken up the exploitation of a mineral property would apply to an English firm of experts, and would secure the services of an accredited English engineer to report upon its prospects and value. When a company was formed to carry on the working of the mine the technical staff would be drawn mainly from Cornwall, and technical supervision and advice would be sought from the firm in London originally consulted. There was this much advantage about this plan, that it gave the public some assurance of honest and competent technical management, to a certain extent quite independent of the financial control of the mine. As a matter of patriotism it was specially acceptable, because it opened up a very wide and remunerative channel for employment to young Englishmen, who devoted all the money and time necessary to constitute themselves properly qualified mining engineers. To mine managers in Cornwall and elsewhere it offered lucrative opportunities arising from practical experience, not itself too well paid. Since the development of

the South African gold fields, however, it must be admitted that the glory of the English mining expert has to a considerable degree departed. It is a confession which we make with considerable reluctance, but which, at the same time, in the interests of the mining profession, it seems desirable to make. The financial creators of the Rand were mainly men of experience on the Kimberley diamond fields, and there American mining methods and men had already been appealed to with some success. They complained that Englishmen did not adapt themselves to the strange conditions of working on the Witwatersrand. The college-taught expert was declared to be a compound of British pedantry and German scholasticism, with little or no practical experience and an unintelligent reliance upon inapplicable text books. The Cornish "captain" was scarcely an improvement. He understood mining practically enough, but it was only as it is understood in Cornwall. He would not deviate from the time-honoured usage of his native land, and he had, as a rule, only a smattering of the scientific knowledge which is essential to the development of a newly discovered mining field. Moreover, he was apt to show a prejudice in the selection of subordinates and the purchase of machinery and stores, which also operated strongly against real economy. It is true that there were numerous exceptions to these strictures. Some of the most successful mines on the Rand have been developed by consulting engineers who came straight from the English technical institutions, or by managers who had learnt everything they know in Cornish tin mines. At the same time it is impossible to shut one's eyes to the fact that there has been, as a whole, a tendency in South Africa to supplant Englishmen as engineers and managers by Americans and Germans. At the present time the most brilliant advisory positions in both the Transvaal and Rhodesia are held by men whose training ground has been California, and managerships are increasingly coming into the hands of their countrymen. A young Englishman with the highest testimonials who goes out to Johannesburg will find considerable difficulty in obtaining a responsible position at a mine of which the directorate is almost entirely English, and the capital of which has been entirely obtained from England. In Western Australia, the same tendency is exhibiting itself with even greater force.

That this is a regrettable state of affairs even the most dividend-absorbed mining shareholders will admit. To give the technical administration of our mines to Americans and Germans is to render it almost certain that the majority of the orders for machinery and other supplies will go to the United States and Germany. As a matter of fact, this result has already largely happened from the growth of the foreign element in mining centres exploited by British capital. There is no need to assign reasons of personal interest to account for such a displacement of trade. A man who has learned mining in California is almost certain to go for the appliances of mining to the sources from which California obtains them. So far as shareholders are directly concerned, the evil of this foreign pre-eminence lies in the inferior *morale* of foreign to English experts. Speaking broadly, we may say that the mining engineer who has been educated in this country looks upon himself as the servant of the shareholders; an American or German is frequently avowedly the employé of a certain group of financiers. In principle, at all events, we cannot say that we admire the system of appointing a man the salaried servant of a private firm or a limited company whose business it is to dispose at a profit of the properties upon which he reports. It is a nice point whether the Californian or German engineers really possess the superior qualifications in regard to technical knowledge with which the mining community in South Africa and Western Australia appears to be ready to credit them. As a rule, the foreigner is more pretentious, and his abilities and knowledge are often less solid than those of an English rival who impresses a financier much less strongly. Many a smart Yankee has of late, since the outburst of favouritism for American engineers, acquired a share in the management of an important mine worked by English capital merely on the strength of a short residence in a Californian mining camp. Moreover, the supply of genuine Californian mining experts is somewhat limited, and many of the Yankees who have recently been imported into the Rand and Coolgardie are the immediate emanations of an Eastern university. They possess even smaller practical knowledge than the discredited Englishman.

It is, however, probable—and we think most experienced English mining engineers will agree with the opinion—that the teaching in English technical institutions is a good deal more inelastic and unpractical than in the corresponding places of the United States and the Continent. Students are grounded in all the details of geology and the metallurgy of the laboratory, while they are taught scarcely anything of the actual working methods of existing mining fields; and too many of them quit their college quite convinced that they are able to take up the management of any mine in the world. If there were more appreciation of the absolute necessity of studying mining itself before essaying to direct all its complicated processes, we feel confident that the present prejudice against British mining engineers would not exist amongst mining financiers. So far as the technical institute has tended to depreciate the importance of actual mining work as a preparation for assuming any degree of control in a mine, it has, perhaps, done a bad service to the profession. Most graduates from a technical college in England would consider it beneath their deserts to accept a position as battery manager or amalgamator. It is precisely because our foreign rivals have had this experience in subsidiary positions, coupled with scientific training, that they are preferred to the theoretical English student, on the one hand, and the too frequently unlearned English mine manager on the other. One very simple reform which would have a very useful effect in training our young mining engineers would be to infuse a more practical character into the papers read before our technical societies. Much has been done of late years in this direction, but a great deal more can be accomplished. Even as they are, however, English mining engineers should certainly be preferred by English shareholders to the foreign experts who threaten at present to monopolise the direction of mining. The French have set us an excellent example in this respect. In the mining companies in which their holdings are predominant they have insisted that places should be found for Frenchmen of sufficient knowledge and ability. Without sacrificing the prosperity of a company to patriotism, English shareholders might very well assume the same attitude.

THE BRITISH ASSOCIATION.

THE annual Carnival of Science, which has been celebrated this year at Liverpool with more than usual brilliancy, has now come to an end, and we have an opportunity of quietly examining how much of the doings of the British Association for the Advancement of Science is likely to have an interest for our readers as bearing upon mining matters. Of course, it is well known that the most scientificially valuable part of the work done by the Association is not that given to the public, but is performed quietly in committee. Nevertheless, the various papers and addresses afford a good opportunity for gauging the general direction of the current of scientific thought and the rate of scientific progress.

Under the presidency of such a man as Sir JOSEPH LISTER, who, besides being a most brilliant surgeon, has won his great triumphs by the application of recondite biological theories and methods to the surgeon's art, it was, perhaps, inevitable that exceptional prominence should be given to the various biological sections, which are precisely those which have less interest than any other for the mining engineer in his professional capacity. When, however, we find that the anthropological section, which would at first sight appear to be as remote as it is possible for any science to be from mining engineering, devoted a morning to a discussion of the origin of the knowledge of copper and iron in Europe, we are forcibly reminded of the inter-dependence of all the sciences. A knowledge of the ancient methods of mining and metallurgy is of value to those who practise these arts to-day, not only as a matter of historical interest, but as indicating the lines upon which their development has proceeded in the past, and, therefore, the most likely to foreshadow the direction of their future progress.

Officially, mining is included as a sub-head of the geological section, which is always one of the most interesting sections at these meetings, but, as it happens, this year no papers bearing directly upon mining were brought forward. The President of the section was Mr. J. E. MARR, one of the secretaries of the Geological Society. His address, marked by all the ability and lucidity to be expected from a geologist of his high reputation, dealt chiefly with the present condition of stratigraphical geology. He pointed out the various imperfections in the geological record, and suggested in what way gaps may be filled up, and our ignorance of certain matters may be, to some extent, overcome; but it is at the same time clear to all geologists that it is quite hopeless ever to expect anything even approaching to completeness in palæontological knowledge. He insisted upon the great importance of the minute subdivision of formations and of the correlation of these smaller stages. To the biologist such labour is of the greatest importance, because it forms the material upon which he has to work, and affords the data from which he draws his conclusions. To the physical geologist this matter of minute subdivision is, however, a subject of but secondary importance; he requires to take a broader view, and to formulate more extensive generalisations in order to write the history of the earth from his standpoint. The mining engineer, we need hardly remark, is necessarily a physical geologist as far as he is a geologist at all; to him palæontology is practically useless, except in some of its secondary deductions, and as far as he is concerned with the earth's crust, the history of its previous inhabitants might almost as well never have been studied at all.

Seeing that the very large majority of the papers presented were on purely stratigraphical subjects, and that a great many of these even were strictly palæontological, there was but little to interest the mining engineer. A few of the papers, however, are of some value in this respect, as, for instance, that by Professor K. BUSZ, on the production of corundum by contact metamorphism, the views of Mr. JOHNSTON-LEWIS on magnetic differentiation, and the paper by Sir ARCHIBALD GEIKIE on crush conglomerates, all of which are calculated to extend our knowledge of physical geology in the way most needed by mining engineers. All these are points of which no one, who has to understand the mode of occurrence of minerals, can afford to be ignorant, because they have a direct bearing upon the genesis of minerals. The most suggestive paper was, perhaps, the brief abstract report by Professor J. MILNE, on the labours of the Seismological Committee. Professor MILNE has made this subject most peculiarly his own, and his report dealt with the nature of the earth movement at present going on. Seeing that fissure veins may very probably be the ultimate result of such earth movements in past times, which may have either caused or accompanied the formation of fissures in the earth's crust, there is a certain amount of probability that these experiments of Professor MILNE, and the labours of the Seismological Committee, may in time throw a certain amount of much needed light on the mode of formation of fissure veins.

Most of the other papers read before the geological section have, as already said, only an indirect bearing on the studies of the mining engineer. We do not, of course, wish to be understood as suggesting that palæontology and stratigraphical geology are not deserving of all the careful study that can be devoted to them. We are only pointing out that the mining engineer is more particularly interested in the broad general results obtained by the specialists who make these branches of geology their study, than in the minute detailed investigations by which the results are attained.

HENRY NOURSE.

IN another leading article we denounce as an act of the grossest injustice the decision of the Volksraad to put up for auction the Bewaarplaatsen claims at present held by a number of leading companies, without any regard to the moral and preferential title of the latter to the first option of taking up the mineral rights. We there deal with the question from a broad and general point of view, and endeavour to show what the ill-effects are likely to be, and what little solid and permanent benefit the Government are likely to gain from so ill-advised an action. One of the companies likely to materially suffer from this act of oppression is the Henry Nourse, a company which during the past year has made considerable progress towards attaining that success for which it has been striving for a long period against many grave difficulties. Naturally the recent decision of the Transvaal Government has given a shock to the shareholders and directors alike, their only consolation being that their legal position is very strong, and that in any case their loss will not be so great as that of most companies. This company originally owned 66 Bewaarplaatsen. Against 48 of these they had bezitrecht over 39 claims, which they succeeded in getting last year, thus leaving the company with 18 Bewaarplaatsen unsettled. They originally held these 39 claims under ordinary claim licences, but were ordered by the Mining Commissioner to convert them into Bewaarplaatsen. Last year these, at the instance of the same individual, were reconverted into claim licences on 39 claims, for which the company obtained bezitrecht and confirmed diagrams, and thus, in accordance with the laws of the country, had an unassailable title to these claims. There remain, therefore, only 18 of the Bewaarplaatsen to be taken into consideration and as several years ago the company made application for the mineral rights under these claims, it goes far to show, as we have already observed, that the company has a strong legal position, which should in some considerable degree minimise the feelings of anxiety which naturally have arisen in the minds of those deeply concerned in the company's welfare. As already remarked, the progress made during the past year has been in every way satisfactory, and should give rise to considerable encouragement and hope that the long sought for success is now approaching within measurable distance of attainment. As a consequence of the results of the 12 months' working, the directors have been enabled to discharge all liabilities, and now have a balance on the right side. The profit amounted to £77,000, which has been applied, and wisely so, in the equipment of the mine. For some years past the Henry Nourse had an unenviable reputation for the magnitude of its working costs. This, of course, was a matter of grave anxiety to the directors and officials, and naturally all their efforts have been directed toward decreasing them within a considerable, though reasonable, limit As a result of this policy they have steadily and regularly succeeded in cutting down this formidable expense, and their efforts have been rewarded with gratifying success. During the year ended June, 1894, the working costs amounted to 54s. 11d. During the following 12 months they were decreased to 51s. 0·437d., whilst for the year ending June of the present year they have been cut down to 36s. 3d., thus showing a very considerable reduction, which must be a very pleasing fact to the shareholders. The ore reserves, on the other hand, have increased considerably, and now amount to 267,000 tons, showing an increase of 100,000 tons during the past 12 months. On reference to our usual table it will be seen that the monthly profits for some time have stood in the neighbourhood of £8000 to £9000, and as there is every likelihood that this will be maintained and increased, the shareholders will look forward with considerable assurance to receiving an adequate return upon the capital they have invested in this now promising mine. Another matter which should give rise to considerable encouragement, and which confirms the bright prospects of the company, is the success attending the experiment made in the treatment of the slimes. The directors are about to erect a plant to deal with these, and the earnings, of course, will swell the future monthly profits. Then, again, economies have been introduced in the treatment of the tailings, When first started, the treatment cost 10s. 1d. per ton. For the year ending June, 1895, it amounted to 8s. 9d., but during the past 12 months this was reduced to 5s., when the 40 stamps were at work, and to 4s. since the additional 20 stamps were put into operation.

FRESH FIELDS AND PASTURES NEW.

THE value of our Consular reports on trade and finance, yearly published by our Foreign Office, is becoming more generally appreciated. The intending emigrant does always well to study these reports before selecting his place of settlement. The report just issued relative to the trade of Valparaiso may be read with some interest. The Government, we learn, are anxious to encourage immigration, and a certain number of free passages are, from time to time, granted under certain conditions with that object. Few colonists, however, arrive from England. The Germans far exceed them, and are more ready to assimilate with the people, the habits, and laws, and have a more general knowledge of the local language, and the languages of other countries than the English colonists. To engage in agricultural pursuits a thorough knowledge of the language would appear indispensable, so that young Englishmen must first see to this; but once there, he will find the climate admirably suited to Europeans, and the mean temperature about 58°, with no frost except in high altitudes, and a soil admirably suited to every description of vegetation and crop. We are getting so accustomed to hear of the Germans cutting out our trade in foreign countries, that one is not surprised to read that the Germans are importing more than formerly, owing to their lower price and to the cir-

cumstance that more German importing houses than English have been established there of late years; but it is agreeable to find that owing to the attention paid of late years to the attractiveness of English merchandise, and to its appearance and ornamentation, Great Britain is now not far behind her competitors. England, however, loses here as elsewhere from the fact that her commercial travellers are less active and less acquainted with the local requirements and language than those of other countries, and this is so, notwithstanding that "English goods are preferred at least at equal prices, and their superiority is generally acknowledged." In machinery and general hardware goods Great Britain contributes, we are glad to see, 80 per cent. of the value of the goods so classed. This is all the more satisfactory since the prospect of the mining industry is so satisfactory, notwithstanding that the conversion and the consequent increase in the value of the dollar had the effect of shutting down those of the smaller mines which were only able to be worked on account of the low exchange. The men thrown out of employment were at once absorbed by the larger mines, labour always being scarce owing to the great temptations held out in the Salitre districts, where wages are very high and the work much lighter. The principal gold mine is, according to the Consul, giving metals of 45 per cent. copper, and 200 ounces of gold per cajon or 3 tons. An extract from the engineers' report to the directors of the Copiapo Railway Company, which finds its way into our Foreign Office paper, will make many mouths water. Speaking of a district to the north, and immediately behind Tres Poutes, lies the mineral called the Inca. The work in this mineral so far has only been carried out generally by people without means, "who have had to limit themselves to working only the very high grade of ores, some of which give 100 ounces to the ton. In the desmontes large quantities of ores, giving 3 ounces to the ton, are to be seen." A railway which will alter all this is to be laid. The Inca mineral is now being worked, the most important mine being the Edelmira, giving 50 per cent. for copper, and 100 ounces for gold. Then follows a report as to other minerals in this district, among which is a lake of borax, where the quantity of borax in the explored part alone is calculated at no less than 96,000,000 of tons. All this goes to show that there is much yet to be opened by the enterprising Englishman who will only make himself familiar with the prevailing language in the colony he proposes to adopt.

THE BEWAARPLAATSEN QUESTION.

IT is extremely exasperating, after calmly settling that the ill affects of the late raid into the Transvaal had been forgotten, and that the mining industry would be allowed to prosper under the peaceful protection of the Government, to learn that the powers to be are contemplating an action which will work serious injustice to those to whom the Republic is under the greatest obligation. The determination of the Government to put up to auction the Bewaarplaatsen claims has aroused, not only in this country, but upon the Continent as well, just indignation, and bids fair to alienate from them the sympathy which their behaviour in the late political crisis universally elicited. Even the distinguished organ which consistently supports the Government, and which apparently thought that it could do nothing wrong or unjust, is the foremost and most vigorous in denouncing the injustice of this contemplated act. The Government certainly has a perfect right to alter the law as it pleases, but a Government which has any respect for itself, and which seeks to act—as it ought to act—in accordance with the laws of justice and equity, is not legislating for the true welfare of its country if it acts in direct opposition to them, whatever the immediate material advantage might be. The immediate effect of the decision is to create suspicion, unrest, and to destroy confidence; and what the Government can possibly gain from all this is beyond any human scope of imagination to conceive. If the companies have no legal right to the claims they have a moral right, and such a right it is not in the interests of the Government to ignore. The decision in question is likely to have a detrimental effect upon the industry, for very great interests are at stake, to say nothing of the pitched battle to which it will give rise between the companies who have the most to lose, and the Transvaal Government. The class of people who are likely to reap the greatest material advantages will be the lawyers, whose gain will mean so much loss to the mining community. The *Standard and Diggers' News*, which is regarded as the organ of the Transvaal Government, denounces in eloquent and forcible language this decision of the Volksraad, which is highly significant, as it is evidence that it is not likely to find favour with its partisans. Our contemporary entreats the Government to stay its hands, and points out the nemesis which will surely follow this disregard of wise counsel. The Volksraad must take into consideration that it will not be a few big financial houses which will suffer, but thousands of innocent shareholders in all parts of the world. But let us hope, before its decision is carried into effect, that wiser counsels will prevail, and that it will be brought home to the Government, that for the sake of an immediate material gain, it will lose that moral support for which every statesman, who has the true welfare of his country at heart, should earnestly and unremittingly strive.

GREAT BOULDER NO. 1.

It would appear from what transpired at the first meeting of the shareholders in the Great Boulder No. 1 that the property which has been acquired for the company is a valuable one, and there seems every indication that in the near future the returns will be such as will satisfy the expectations of the most exacting proprietor. The exploration of the ground has resulted in the discovery of four distinct lodes, including the Great Boulder main lode itself. Should this lode still continue to carry the same amount of gold as has been the case in the Great Boulder Proprietary Mine, when it is stated that the length of the line of the strike of the reef is supposed to be 1446 feet—nearly 200 feet more than in the Great Boulder—this fact alone should be a sufficient guarantee of the promising nature of the property. The manager, in his July report, wrote that the crosscut to the west from the 100 feet level of the No. 3 shaft was passing through similar country rock to that enclosing the lode at the Great Boulder main shaft workings. In the No. 5 shaft, the report proceeded, at a depth of 30 feet, a lode, which had a large outcrop of ferruginous quartz carrying free gold, was struck, and a cablegram just received in regard to this informed the directors that at 72 feet the ore was found to be worth 1½ ounce per ton. The two other lodes which those in charge of the operations believe they have are the Ivanhoe and another, called the East lode. The recent discovery in the Ivanhoe Mine almost conclusively proves that this rich lode runs diagonally through the south-east corner of the Great Boulder No. 1 property for a distance of 880 feet. The yield from the Ivanhoe lode has been as high as 6 ounces to the ton from the battery. A very good augury for the success of the company is that the reins of management are in the hands of experienced and eminent mining men, in whom the directors have the utmost confidence—a feeling which we are sure is equally shared by the shareholders. These gentlemen have been given an entirely free hand in the matter of ordering the necessary machinery and plant, and there need be no hesitation in relying on their efforts to place, without any delay, the Great Boulder No. 1 in the list of dividend-paying companies.

HANNAN'S NORTH CRŒSUS.

THE information given to the shareholders at the statutory meeting of Hannan's North Crœsus was necessarily of a meagre character, and apparently some little time will elapse before the proprietors will be in a position to ascertain the true value of their property. However, it may be a little comforting to know that there is every indication that the lodes which have proved so valuable in the neighbouring mines will also be found in this company's property. Of course whether, when struck, they will still carry the same quantity of the precious metal remains to be seen, but at present there is no reason for believing that the lodes have become poorer on entering the North Crœsus Mine. On the other hand, the Chairman, who was very cautious in not making statements likely to mislead the shareholders into the belief that the mine had already been proved to be rich, spoke very cheerfully in regard to the company's prospects. Referring to the work now proceeding, Mr. GUTHRIE said:—"There is a shaft sunk about 90 feet from the eastern boundary to a depth of 115 feet, and a crosscut has been put in 122 feet in length; another shaft is also down 108 feet, and two crosscuts have been driven, one 22 feet, and the other 83 feet. We expect to hear at any moment that these drives have cut the lodes which are being so profitably worked on the adjoining leases." The vendors evidently have great faith in the property, they having agreed, in the event of additional working capital being required, to guarantee the issue of the shares at present held in reserve.

THE MINING MARKET.

FRIDAY EVENING.

A week of depression, with a slight rally on the eve of the Settlement.

A WEEK of nervous depression and gloom, in which almost every department of the Stock Exchange has shared impartially, culminated to-day in a state of aggressive flatness, in which more than one market verged upon panic. It is impossible to dissociate the Mining department from other sections in attempting to arrive at an explanation of this state of affairs. The political situation, as affected by the Armenian question, has so far unsettled everybody as to kill all disposition for the increase of speculative commitments in the direction of higher prices. The steady drain of gold from the Bank of England to the United States, with the consequent expectation of a rising Bank rate, exercised a further disquieting feeling. Encouraged by this combination, professional operators for the fall levied their attacks, first upon one market, then upon another, and it appeared to be no one's interest to oppose the movement. For several days holders of stock refrained from playing into the hands of the bears, but with the approach of the Settlement and in view of the alarming shrinkage in values, weak holders have at last taken fright and have joined in a vain endeavour to unload their shares upon a receding market. To a certain extent the slightly increased dearness of money has contributed to the fall, as sales have been pressed of pawned stock. Deliveries of this kind have made the position of the bears much more comfortable than it would have been supposing that there had been nothing but speculative selling. The raising of the Bank rate on Thursday to 3 per cent. was expected to have a steadying effect upon prices, and for a few minutes this expectation was realised. But the rally was but short-lived when it was found that the volume of new business was too small to keep the market together. A sudden fall in Spanish Bonds this morning, coupled with a large accession of realisations for small holders, gave the final blow to the market. As is always the case under such circumstances, the air was thick with rumours of evil, and the Settlement to-morrow is anticipated with considerable uneasiness. It remains to be seen whether or not the scare has been overdone. The foregoing remarks apply to the general situation within the House, rather than to the Mining Market in particular, but, as already stated, it is impossible to separate the two interests. There has been a combination of disclosures that have exercised a discouraging effect upon Mining holders, more especially amongst those interested in Western Australia. There is not much consolation in the reflection that the worst news always comes to the fore when markets are flat. Adverse points, which in many cases have been matters of common knowledge for weeks and months beforehand, are always insisted upon in times of special depression, and are part of the weapons of war with which the bears secure their profits. The making up for the End-September account will commence, so far as mines are concerned, on Saturday morning, and it is to be hoped that as soon as the sales on account of weak holders have ceased, a more hopeful feeling will prevail. During the last hour of to-day's dealings the tone has been distinctly better, and in what may be called the inner stocks a material recovery from the worst is seen. The old adage, "It is always darkest before dawn," has on many similar occasions proved true. Certainly on no day is there a greater chance of its realisation than on the eve of a settlement which has been preceded by such a fortnight as that through which we have just passed.

South Africans.

The Matabele war has been quite overlooked as a factor in the situation since money and politics have provided the war cries of the bears. Chartered changed hands below 3 this morning, but rallied to the figure at which they show a loss of ⅛ only on balance. It is quite remarkable how this stock, which was once the barometer of the Kaffir Circus, is now relegated to obscurity, so far as the active market is concerned. Gold Fields Deferred were under 12 this morning, and at 12⅛ finally show a loss of ⅝ on the week. Gold Trusts kept tolerably firm till to-day, when they lost 10s. in a few minutes. At 7⅝ they are ⅝ down, whilst Gold Fields Deep are half a point easier at 10. East Rands, which have assumed the position in the market once held by Chartered, leave off ⅛ lower at 6⅝, after being flat at an appreciably lower price this morning. Comets at 2⅜ and St. Angelo at 4½ are about ⅛ down. Anglo-French Explorations have shed ⅜ at 4⅜. Land and Finance Companies generally have been in a state of suspended animation, holders recognising the impossibility of selling in such a market as there has been this week. The following prices accordingly are not much more than nominal:—Adlers Consols 1⅛, African Estates 1½, Exploring Land and Minerals 1½, Hendersons 2⅜, Mashonaland Agency 2, Mozambique 1⅛, New African 3½, Oceana 1⅛, Rhodesia Exploring 5¾, Willoughby Consols 1⅛, and Zambesia 2½. In Deep Level properties prices have been fairly well maintained. Champ d'Or Deep at 2, Consolidated at 5½, Nigel Deep at 1½, Nourse Deep at 5⅛, and Roodepoort Deep at 2½, are all within ¼ of last week's prices. Geldenhuis Deep have improved ¼ to 5½, whilst Rand Mines are ⅜ down at 28⅝. There has been little open support to the Barnato group, though the great "Barney" has been in evidence on the kerbstone, as well as at all the "first nights" at the theatres. The New Primrose capital increase has not been accepted as a bull point. The capital is to be raised to £300,000, and the new shares offered to existing proprietors at £5 in the proportion of one new to 14 old. The old shares are ¼ down at 5¾. Losses ranging up to ¼ are seen in Barnato Bank at 2, Barnato Consols at 2⅝, Buffelsdoorn at 2½, Crœsus at 1⅜, George Goch at 2, Ginsberg at 2½, Glencairn at ⅜, Johnny's Investment at 3½, Kimberley Roodepoort at 2½, Langlaagte Royal at 2, May Consolidated 2⅛, Rietfontein at 5½, and Spes Bona at 1½. Randfonteins have been supported by the Robinson clique, and close unchanged at 2½, whilst Robinson Banks are ¼ better at 5½. Block B has lost ¼ at 1½, and Langlaagte ⅛ at 5¾. The Eckstein Group has stood its ground fairly well, the most speculative share, Modderfontein, naturally shows the biggest deduction, closing ⅝ down at 6½, after being lower. Henry Nourse has lost ¼ at 6½, and Wemmer ⅜ at 8½, but other losses do not exceed ¼. These are in City and Suburban at 4½, Heriot at 9½, Jubilee at 8½, and Jumpers at 6⅜. No alteration is reported in Nigel at 3, Geldenhuis at 3¾, Salisbury at ¼, and Simmer and Jack at 6¼. Village Main Reefs have declined ⅛ to 6. Bantjes, in which there is an open account for the rise, have lost a ¼ at 3⅞, and Knights are half a point down at 6½. Chimes have fallen ⅛ to 1⅛, Crown Reef ¼ to 11, Durban Roodepoort ⅛ to 6½, Kleinfontein ⅛ to 3⅜, Luipaard's Vlei ⅛ to 2, Meyer and Charlton ⅜ to 5¼, Robinson ⅛ to 8½, Transvaal Gold ⅛ to 7⅜, Van Ryn ⅛ to 8½, and Wolhuter ⅛ to 6½. The small Lydenburg shares are generally a few pence easier, but quotations are not very reliable. Diamond shares have given way in sympathy with weakness on the Paris Bourse—De Beers have lost ½ at 29, and Jagers ⅜ at 9⅛.

West Australians.

This has been a distinctly bad market during the week. The bears seem to have had matters all their own way, and quotations have crumbled at the mere approach of a genuine seller. This afternoon operators for the fall have considered it advisable to get their books even in one or two specialities, with the result that prices have rallied from the lowest points touched. In three cases out of four quotations are nominal. It is often impossible to sell, but, on the other hand, it would be just as difficult to buy were the present cloud to lift. The circular issued by the directors of the True Blue, indicating that exploration has not fulfilled prospectus promises in the matter of payable ore, has had a damping effect upon the whole market. This time last year the shares of the True Blue, a property situate in the heart of the Hannan's district, were changing hands over £4 a piece. They are not saleable much over £1 to-day. Brownhills have lost ¼ at 5½, Oroya ¼ at 1⅞, Hannan's Reward ⅜ at 2, Paddington Consols ¼ at 1⅞, Iron King ¼ at 1½, Cœsus South United ⅛ at ⅞, North Boulder ⅛ at 1⅛, and Great Boulder ⅛ at 6½. On the other hand, Lake View have scored a rise of ⅜ at 7⅜, and Hannan's Star are ⅛ up at 1⅜. Associated kept very firm until the middle of the week, when the prevailing flatness proved too much for them, and they shed ⅛ at 3. Lake View South are ⅛ down at 2⅛, and Associated Southern ⅛ lower at 1⅛. Mr. Bottomley's special pet, Joint Stock Trust, is 10s. lower at 3½ premium. A good deal of conflicting rumour has been in circulation as to the Lady Loch Mine. There seems to be a suspicion of something wrong somewhere, for the shares which rose to 2½ on Tuesday were sold right away below 2, at which they close. The Menzies group is generally lower. Consols at ⅛, Gold Estates at ⅛, Mining and O'Driscoll each at ⅛, Lady Shenton at 1⅜, and Florence at ⅛. Vigorous attempts have been made to bolster up Hit or Miss, but the shares are ¼ down at 2⅛. White Feathers were over 2 this morning on the announcement that crushing will be commenced next week. At the last, however, the shares are ⅛ down at 1⅜. Ramage Syndicate has lost ⅜ at 3⅜, and Black Flags are the turn easier at 1⅛. London and Globe Finance have been in demand this afternoon, and close actually ⅛ to the good at 4⅛. Colonial Finance has declined ⅜ to 3½. West Australian Gold Fields touched 7 this morning, but rallied sharply this afternoon, closing only ⅛ down at 7⅛. Mainland Consols have lost ⅛ at 2⅛, and there have been some quick fluctuations in Hampton Plains, which, after rising to 4½, are finally ⅛ down at 3⅞. The proposal of the directors to pass the dividend, but make a capital return of 4s. per share, has not found favour with holders.

Miscellaneous.

Rio Tintos have moved briskly at the bidding of Paris operators, and are finally ⅛ better at 23½. Other copper shares are inclined to be dull. Anacondas have receded slightly to 6⅛, Tharsis to 5⅛, and Capes to 2⅛. Broken Hills are ⅛ down at 2⅜, Wentworths have had a sudden jump to ⅞, but

Aladdins have moved in the opposite direction, losing ¼ at 2⅞. Burma Rubys have lost ¼ at ⅝. Indian Gold shares have been decidedly quiet. Champion Reefs are unchanged at 7⅛, Mysores rose to 8⅜, reacting to 8¼, which is ⅛ better than last week's price, whilst Ooregums are ¼ lower at 3⅛. Wynaad has lost 1s. 6d. at 15s. 6d. The New Zealand Group has been dull, and prices generally are lower. Consolidated Gold Fields of New Zealand have fallen ⅛ to 3⅜, Taitapu ⅛ to 2¾, Waihi ⅜ to 6⅜, and Waitekauri ¼ to 4¾. Hauraki and Kapanga are maintained at their previous prices, 18s. and 14s. respectively. Charters Towers shares have been neglected, except in the case of Day Dawn Block, which have been pressed for sale on a disappointing return from the mine. The price is 2s. 6d. lower at 11s. 6d

STOCK EXCHANGE SETTLING DAYS.

CONSOLS.

Thursday, October 1.

MINING MAKING-UP DAYS:

Saturday, September 26. | Monday, October 12.

MINING NAME DAYS:

Monday, September 28. | Tuesday, October 13.

ACCOUNT DAYS:

Wednesday, September 30. | Thursday, October 15.

PARIS LETTER.

The feature of mining finance—Attitude of investors in mining shares—Position of the Kaffir market—Gold mining in Madagascar.

(FROM OUR OWN CORRESPONDENT.)

ONE of the most characteristic features of French mining enterprise is the fact that the financing of new undertakings is carried out almost entirely by the banks or syndicates and other companies who are placed in the agreeable position of being responsible for their operations to no one but themselves. Their shares are dealt with in exactly the same way as those of the mining companies, and they are, as a rule, of a much more speculative character. A sound mining concern must necessarily possess valuable assets in the shape of visible gold if it would for any length of time enjoy the confidence of the public, but the syndicates have no fixed assets whatever, and have nothing to show but blocks of shares which are liable to the most violent fluctuations. It is quite possible that the "banks" may realise enormous profits by shrewd speculation in a very short space of time, and it is equally possible that they may "drop" a heavy part of the capital which the public may have committed to its care, though it must be confessed that with the special facilities usually possessed by these powerful syndicates there may be a greater possibility of gain than loss. However this may be, the public who subscribe the capital for these concerns is rarely permitted to see what is being done with its money, and the shareholders must perforce possess their souls in patience until such time as the directors deem it expedient to pay a dividend. Fortunately, these syndicates seem to have come to the conclusion that wholesale speculation is not likely to lead so much to success as legitimate investment. They have thus relegated the buying and selling of shares to a secondary position until such time as a fresh opportunity is afforded of indulging in a profitable deal, and the energies of the banks are mainly directed to the financing of new concerns, mining and otherwise. Without this assistance it is to be feared that new mining enterprise would receive extremely little attention in this country. The small capitalist and investor have been frightened off fresh undertakings by a variety of circumstances which, in their imagination, make the situation almost hopeless. The political outlook is hardly more satisfactory than the general state of finance, and while Turkey is in a turmoil, and the Bank rate in the various European capitals has been raised, the forebodings of timid people have some chance of becoming contagious.

Not only is the mining market very strongly affected by foreign influences just now, but it is seriously shaken by the abnormal state of things within the precincts of the Bourse itself. There is a general impression among investors that a certain stability is given to the market by the solidarity of the *Coulisse*, which is supposed to be capable of keeping speculation within reasonable bounds. If the *Coulisse* fulfilled its original scope of action, there is no doubt that it would exercise a very beneficent influence upon mining shares, but, unfortunately, of late years it has been undergoing a process of gradual disintegration. The members of the *Coulisse* only display anything like unanimity when an attempt is made to interfere with their privileges, but otherwise each acts upon his own responsibility, quite oblivious of the danger that exists in letting the market work out its own destruction. From time to time the bankers have endeavoured to carry out some reform, and 12 months ago there was even some talk of suppressing the *Coulisse*, but this powerful body is always able to hold its own. It is becoming more and more evident that some drastic reform is needed if the mining market is to be established upon a solid basis, but no one has been found bold and energetic enough to carry out this work. Apart from this situation, which, without directly menacing the interests of shareholders, is yet calculated to leave the market at the mercy of foreign speculators, another element of depression is afforded just now by the discovery that French investors have lately been purchasing shares at much above their intrinsic value. It is, of course, exceedingly difficult to give anything like an accurate idea of the intrinsic value of gold mining scrip, but if prices are to be compared with those prevailing on the Stock Exchange, it is evident that buyers here have been paying much more for South African mining shares than there was any necessity to do. In fact, it is perfectly clear that English speculators have been off-loading their shares in a way that must leave them with considerable profits, and they are thus repeating the policy that was carried out so successfully during the few months that preceded the slump of last autumn. Holders, however, are firmly resolved not to be led away again into reckless buying, and they are preferring to wait until they can see the probable course of the market. So far as the immediate future is concerned there is little to give them confidence of a steady improvement. The position of some of the Rand companies is believed to be not so brilliant as had been at one time supposed, not on account of the possibilities of the gold yield, but because the various economic questions that are continually being raised in the Transvaal are likely to constitute serious burdens upon the industry. Until these questions are settled there is not much probability that investors here will resume taking up Kaffir shares with their old freedom. Again, the immediate outlook has been checkered by the coming settlement, which is being preceded by the usual rumours of possible failures. These rumours, however, can be accepted as nothing more than bearing manœuvres, for though it is notorious that some of the members of the *Coulisse* are in anything but a sound position, the fact that they have been careful to restrict their operations during the past few months leads to the hope that they will go successfully through the liquidation as on previous occasions. Timid holders, however, prefer to make sure of their position by off-loading their superfluous shares, with the result that this week there have been some heavy realisations. The tone of the market is yet by no means so unsatisfactory as might have been expected under the circumstances, and while prices are weaker, and have fallen several points, investors have learnt enough from past experience to hold on to their scrip where possible, with the certainty that at some time or another the values will come back to a higher level. This is proved by the fact that the speculative shares have alone suffered largely from the present quietude, and that scrip which is purchased as an investment has fluctuated to a much smaller extent

While mining enterprise is at the moment kept within such narrow limits by the refusal of investors to take up anything but the leading Rand shares, it is not surprising that so little should be done towards developing the auriferous resources of the colonies. One of the strongest arguments lately made against the permission to allow British capital to participate in colonial mining undertakings, was the assertion that plenty of money for this purpose could be found in France and that investors here were only too eager to help in turning the mining wealth of the colonies to good account if they could be freed from the competition of the English. Now that the English have been practically told that their assistance is not wanted, the promised capital is not forthcoming, nor is it likely to be for a long while to come. It was expected that by now the new possession of Madagascar would be yielding enough gold to compensate for the enormous expense that has been incurred in reducing that country. Unfortunately, these expenses are by no means at an end yet, and a long and costly work of repression will have to be carried out before anything can be done towards the creation of a profitable mining industry. Prospectors who are now in Madagascar find it impossible to do anything owing to the hostility of the natives, and even when they go out in armed parties they are not always safe from attack. The dream of a vast mining industry that shall rival that of the Transvaal is, indeed, as far from realisation as ever. If there were any certainty of gold existing in payable quantities there might be some justification for the belief that the new colony will become a source of prolific wealth, but, except for the property in the possession of the Suberbieville Gold Mining Company, and concerning which there is remarkably little definite information, there is no proof that payable gold exists in Madagascar at all. Even one of the leading authorities in the colony regretfully admits that, "so far nothing has been discovered but a few placer deposits with only a small content of metal." This is not encouraging, and French capitalists are not disposed to go to any expense in establishing an industry until the outlook becomes more promising.

CORRESPONDENCE.

We wish it to be understood that we do not hold ourselves responsible for, and do not necessarily endorse, the opinions of correspondents. All communications must be accompanied by the names and addresses of the senders, though these need not necessarily be published.

THE STRUCTURE OF THE PYRENEES.

TO THE EDITOR OF "THE MINING JOURNAL."

SIR,—Bad weather, which usually cuts about two-thirds of the time given to mountain exploration, enables me to give you the results of my fifth visit to the Spanish side of that part of the Pyrenees, which I have already described on the side of France.

Around Sallient, whence I now write, the rocks have been systematically classed as Devonian and Carboniferous. By three independent classes of evidence they are Cretaceous. Hence, by the undoubted Cretaceous rocks of Eaux Chaudes, they prove that from north to south the entire thickness of the central Pyrenees is almost exclusively Cretaceous. The contrary being the foundation of much of current geology, it is worth while to distinguish science from the mere repetition of error.

The lowest rocks in the valley of Sallient are, in innumerable details of colour, composition, and structure, identical with those of the Lower Cretaceous of the whole French Pyrenees. In thickness they resemble no other formation of the chain. The entire character of their stratigraphical relations is singularly identical with the Cretaceous of Lourdes, which is classed absurdly as Cambrian. The fossils consist of Belemnites, which, as in the Tyrol, have been mistaken for Orthoceratites; of Ammonites, of well-marked Cretaceous character, mistaken for Goniates; and of other forms which present no distinctive features. The only reason for which these rocks have been classed as Primary is the fact that they are cut and penetrated by great masses of ophite, porphyry, and granite. As I have already said, this penetration is the main feature of the Pyrenees, and here as throughout the chain it occurs in Cretaceous rocks.

From every side I have traced the absolute certainty of the supposed Devonian and Carboniferous of Sallient with the Cretaceous of other parts of the chain.

The presence of aquatic plants that resemble vaguely Carboniferous species is the only difficulty. These plants are not characteristic, and may well occur at any level of the secondary series.

Mallada, the present chief of the Geological Survey of Spain, has studied the district of Sallient, and has more generously appreciated my work in the Pyrenees than any other writer. I am quite certain that he will confirm, sooner or later, my present results of observation since 1866.

In a word, from north to south, from east to west, nearly the whole Pyrenean chain is Cretaceous, and it affords the grandest possible example of the penetration of Cretaceous rocks by granite and accessory products. In the present state of geology throughout Europe it is impossible to imagine a result of greater importance. The whole theory of mountain chains, and especially of ore deposits, requires consequent revision.

Around Sallient and in many other parts of the Pyrenees, I have been frequently urged to visit mines which I believed to be industrially worthless because situated in Cretaceous rocks. Of the Cretaceous character of all these mines I have now the proofs. Iron mines are, on the contrary, best when, as at Bilbao, they are in Cretaceous rocks; and the Bilbao type of deposit is common throughout the Pyrenees. I would merely add that the marbles of the Pyrenees are a regular and predictable consequence of the influence of the igneous rocks on the Cretaceous formation, and may hence be traced and detected on theoretical grounds.

To geologists my observations will appear sweeping and deserving of elaborate proof. I have given enough indications to enable any geologist to follow out with ease the detailed presentment of the truth in both Pyrenees and Alps. I hope soon to complete that work of publication. But meanwhile, *The Mining Journal* may fitly, in the fulfilment of its part, as the English representative of mining science, give to those who care to profit by them the hints which will certainly save to others the struggle with empty fictions which has cost me many years of life. The simplicity and perfect coherence of the conclusions which I have reached, the utter worthlessness of the supposed facts which I have long found to be incompatible with all my observations in the field, teach me the value of such hints as I give in these letters. Similar results of observation would make mining a science and geology a really useful pursuit.—Yours faithfully,

Sallient, September 12. P. W. STUART-MENTEATH.

The transfer books of the BUFFELSDOORN ESTATE AND GOLD MINING COMPANY (LIMITED) will be closed from October 1 to 9, both dates inclusive.

THE METAL MARKETS.

THE METAL MARKET, LONDON, SEPTEMBER 25.

Copper.

THE speculative market opened firmer with business at £48 s.c. and £48 1s. 3d. three months G.M.B.'s. Transactions during the early part of the week were on a restricted scale, and the predominance of sellers led to a decline in values, £47 13s. 9d. being accepted on Wednesday for both positions. Consumptive demand also remained quiet, and America evinced rather more disposition to sell. Thursday brought an improvement to £47 16s. 3d. s.c., which position declined later in the day to £47 12s. 6d., whilst three months, owing to the dearer money market, became relatively dearer, £47 16s. 3d. being paid in the afternoon. To-day, after transactions at £47 11s. 3d. and £47 10s. s.c., and £47 15s. three months, the two positions close respectively at £47 10s. to £47 11s. 3d., and £47 15s. to £47 16s. 3d.

Tin

opened 5s. lower at £58 5s. s.c. and £58 17s. 6d. three months, and a quiet business took place on Monday at these prices and 1s. 3d. to 2s. 6d. lower. Tuesday was more active, but values suffered farther to the extent of 3s. 9d. to 5s., £58 s.c. and £58 10s. three months being accepted. On Wednesday a fair business (about 350 tons) was done at £58 s.c. and £58 12s. 6d. three months, and yesterday was quiet at 1s. 3d. to 2s. 6d. higher prices. To-day's market was a trifle firmer at £58 5s. to £58 2s. 6d. s.c., and £58 15s. three months, and we closed steady at £58 to £58 2s. 6d. s.c., and £58 15s. to £58 16s. 3d. three months Straits. Billiton declined from fl. 35⅝ s.c. and three months to fl. 35½, the closing price this morning. Banca closed at fl. 35½.

Pig Iron.

Last week's shipments from Scotland were advised as 5800 tons, a decrease of about 1000 tons upon those of the same week of last year. The Glasgow market ruled fairly steady but dull at 46s. 2d. to 46s. s.c. Scotch during the first days of the week, and closed firmer at 46s. 2½d. buyers. Hematite and Middlesborough close at 47s. 1½d. and 38s. 0½d. respectively.

Lead.

Prompt stuff has been scarce and in request, and values have again stiffened, the close being firm at £11 5s. to £11 6s. 3d. soft foreign, and £11 7s. 8d. to £11 10s. English.

Spelter

has been stimulated by active demand contrasted with short supplies, especially for September and October delivery, and prices advanced about 20s. upon last week's close. The final quotations are a shade below the best, viz., at £17 ordinary and £17 5s. special.

Antimony

quiet at £29 to £29 10s.

Quicksilver,

Firsts have risen to £6 12s. 6d., and seconds to £6 12s.

The following are to-night's (September 25) prices of metals:—

	£	s.	d.		£	s.	d.
Copper							
Tough cake and ingot	48	10	0	.....	50	0	0
Best selected	49	5	0	.....	50	5	0
Electrolytic Copper	50	10	0	.....	52	10	0
Sheets and sheathing	—			.....	£8	0	0
Flat bottoms	—			.....	61	0	0
Chili bars (spot, & 3 months respectively)	47	12	3	.....	47	13	3
Good merchantable,)							
Copper tubes, seamless	—			.....	0	0	8½
Alloys							
BRASS: Wire	—			.....	0	0	8
,, Tubes (solid drawn)	—			.....	0	0	7
,, Sheets	—			.....	0	0	8½
PHOSPHOR BRONZE: Alloys II.)							
,, ,, III. or) Cog Wheel Brand	—			.....	81	0	0
,, ,, VII.)	—			.....	83	0	0
,, ,, XI.)	—			.....	75	0	
,, ,, Vulcan brand Al	—			.....	72	0	0
DURO METAL	—			.....	74	0	0
BULL'S METAL	—			.....	85	0	0
Ferrobronze (Vivian's)							
Ingots...per lb.	0	0	6¾	.....	—		
Ordinary sheets, plates, bolts and bars	0	0	7¼	.....	—		
Screw bolts and nuts	0	0	8¼	.....	—		
Pump rods, plain	0	0	7¼	.....	—		
,, finished	0	0	10¾	.....	—		
DELTA METAL: No. 4 (per ton)	—			.....	—		
,, Sheets and plates (per lb.)	—			.....	—		
,, Bars, round, square, flat (per lb.)	—			.....	—		
,, ,, hexagon (per lb.)	—			.....	73	0	0
Tin							
English, ingots, f.o.b.	—			.....	62	5	0
,, bars	—			.....	63	5	0
,, refined	—			.....	64	5	0
Straits, spot, and three months respectively	58	2	6	.....	58	16	3
Australian, spot, and three months respectively	59	2	6	.....	59	16	3
Banca ,, (in Holland)	—			.....	59	2	6
TIN PLATES: Charcoal, best quality ... per box	0	14	0	.....	0	18	6
,, ,, ordinary	0	11	0	.....	0	13	6
,, Coke, best quality	0	10	0	.....	0	10	9
,, ,, ordinary	0	9	9	.....	0	11	0

These prices of tinplates are f.o.b. at Swansea; at Liverpool 6d. per box more.

Iron							
Pig, G.M.B., f.o.b., Clyde, spot	—			.....	2	6	8
,, Scotch pig, No. 1 Gartsherrie	—			.....	2	10	0
,, ,, Coltness	—			.....	2	12	0
,, ,, Clyde	—			.....	2	9	0
,, ,, Govan	—			.....	2	7	3
Bars, Welsh, f.o.b. Wales	—			.....	5	7	6
Plates ,, ,,	—			.....	6	7	6
Bars, Staffordshire, at works	—			.....	5	7	6
Sheets ,, ,,	—			.....	6	12	6
Plates ,, ,,	—			.....	6	5	0
Hoops ,, ,,	—			.....	5	15	0
Ship plates, Middlesborough	—			.....	5	2	6
STEEL: English spring)	—			.....	12	10	0
,, ,, cast)	—			.....	42	0	0
,, Rails at works, according to section	4	5	0	.....	5	15	0
Lead							
Spanish or soft foreign	11	5	0	.....	11	6	3
English pig, common	11	7	6	.....	11	10	0
,, L.B.	—			.....	11	15	0
,, sheet and bar lead	—			.....	12	5	0
,, pipe	—			.....	12	15	0
,, red	—			.....	14	0	0
,, white	—			.....	17	10	0
,, patent shot	—			.....	14	15	0
Spelter							
Silesian ordinary brands	—			.....	17	0	0
,, special brands	—			.....	17	5	0
English Swansea	—			.....	17	15	0
Sheet Zinc	19	10	0	.....	19	15	0
Antimony							
Antimony	29	0	0	.....	29	10	0
Quicksilver							
Flasks, 75 lbs. warrants	6	12	6	.....	6	12	6
Ore, c.i.f., U.K. ports	**Manganese**			per unit.			
1st quality, 50 per cent. and upwards	0	0	11	.....	0	1	1
2nd ,, 47 per cent. to 50 per cent.	0	0	10	.....	0	1	0
3rd ,, 40 ,, 47 per cent.	0	0	9	.....	0	0	11
Aluminium							
	Per lb.				Per lb.		
98-99½ per cent.	0	1	4½	.....	0	1	6
Nickel							
98-99 per cent. guaranteed	0	1	2	.....	0	1	4

A NEW MAP OF WEST AUSTRALIA.—We have received the copy of a new map of West Australia, by Mr. Edward Stanford, of 26 and 27, Cockspur-street, Charing-cross, S.W., which is fully equal, if not superior, to anything of the kind yet published. Its marking is clear, its colouring soft and moderate, and its scale sufficiently large without being excessive in size. The map is prepared with special regard to the gold fields, which are marked, so far as we can judge, with accuracy and precision. Altogether, the map reflects credit upon the eminent firm which is responsible for its production.

"THE MINING JOURNAL" SHARE LIST.

ABBREVIATIONS AND REFERENCES.—The following are the significations of the abbreviations and references which occur in the Share List:—*Ay*, Antimony; *A*, Arsenic; *Bl*, Blende; *Bx*, Borax; *C*, Copper; *D* Diamonds; *G*, Gold; *I*, Iron; *L*, Lead; *M*, Mundic; *N*, Nitrates; *P*, Phosphates; *Q*, Quicksilver; *R*, Ruby; *S*, Silver; *S-l*, Silver-lead; *Sul*, Sulphur; *T*, Tin; and *Z*, Zinc. * in the "Amount of Share" column of British Mines signifies that the mine is conducted on "Cost Book" principles; ‖ in the "Head Office" column of African Mines signifies that the address given is not that of the head office but of a sub, or transfer office; and †, following the names of African Mines, signifies that they are subject to the Limited Liability Law of the South African Republic.

"*" The following is by far the most complete and comprehensive list of mines, in whose shares business is being currently transacted, published. Additions will be made from time to time as occasion requires. Every effort is made to ensure accuracy, and Secretaries of Companies, Share Dealers, and our readers generally, are cordially invited to co-operate with us to this end, by notifying us of any errors that may at any time occur. We desire it to be understood that while our Share List will almost invariably be found correct, we do not hold ourselves responsible for any loss or inconvenience that may arise from possible inaccuracies.

AFRICAN MINES.

Name.	Closing Price, Sept 25, 1896	Closing Price Sept. 18, 1896.	Am't. of Share	When last XD and Dividend.	Called up Per Share.	Amount of Stock or No. of Shares Issued.	Situation of Mine.	Head Office.
			£		£ s. d.			
Abbott's Con, Reefs	⅞ ⅞	6/ 7/	1 0	—	1 0 0	—	De Kaap	Broad Street Avenue
Adler Consolidated	1⅝ 1⅞	1⅜ 1⅝	1 0	—	1 0 0	250,000	Transvaal.	1, Moorgate place.
African Estates.....	1⅛ 1⅛	1⅛ 1⅜	1 0	2/& rtsOc.16 95	1 0 0	438,600	De Kaap...	3, Copthall-buildings
„ Gold Recvry.	2 2¼	2⅛ 2⅜	1 0	rts Oct 30 '95	1 0 0	175,000	—	23, College Hill.
Afrikander ..... G	1⅝ 1¾	1⅝ 1⅞	1 0	rts May 24 '95	1 0 0	40,000	Transvaal.	23, College Hill
Alexandra Estate G	9/16 11/16	⅜ ½	1 0	—	1 0 0	225,000	Rand	16, George street
Angelo	4⅜ 4⅝	4⅜ 4⅝	1 0	—	1 0 0	175,000	—	Winchester House
Anglo-French Exp.	4⅛ 4⅜	4⅞ 5	5 0	rts Aug. 28 '96	5 0 0	30,300	S. Africa	3, Princes street
„ Matabeleland	1¾ 2¼	1¾ 2¼	1 0	—	1 0 0	39,750	Matabld.	Winchester House.
Appantoo ..... G	— —	— —	1 0	—	1 0 0	77,885	West Cost	Dashwood House.
Aurora ..... G	1¾ 1⅝	1¾ 1¼	1 0	5% Mar.'93	1 2 6	65,000	Rand	8, Old Jewry.‖
„ West United.	1¾ 1⅝	1⅝ 1¾	1 0	—	1 0 0	100,000	„	7, Lothbury
Baltis Eersteling G	/9 1/3	1/ 1/6	10/	—	0 10 0	520,000	Transvaal	85, Gracechurch-st.
„ Land	5/3 5/9	5/ 5/6	10/	1/ Feb. 13, '96	0 0 0	520,000	„	„
Bantjes Consol ...G	3¼ 3¼	3 3⅛	1 0	rts Sep 24 '95	1 0 0	83,000	„	15, Geo. st., Mn Ho.
Barnato Bank	2 15/16 2 1/16	2 1/16 2 3/16	1 0	—	1 0 0	2,625,000	—	7, Lothbury
„ Consol ...	2 9/16 2 11/16	2 13/16 2 15/16	1 0	—	1 0 0	1,000,000	—	„
Barrett..... G	12/ 14/	13/ 14/	10/	—	0 9 0	207,496	De Kaap	17, Basinghall-street
Bechuanaland Exp.	1⅜ 1⅝	1 7/16 1⅝	1 0	rts Jy 24 '95	1 0 0	400,000	Bechuana.	19, St. Swithin's-lane
„ Trad g Assoc.	1½ 1⅝	1½ 1⅝	1 0	1/6 July 15, '96	0 10 0	91,307	„	72, Basinghall street
Big Golden Quarry	/6 1/	/6 1/	5/-	—	0 5 0	483,226	Kaap Rivr	Warnford Court,
Block "B" Lang.	1⅜ 1⅝	1 11/16 1 13/16	1 0	—	1 0 0	535,000	Rand	8, Princes-st., E.C.‖
Bonanza	3 1/16 3 3/16	3 3⅛	1 0	—	1 0 0	2:0,000	Turffont'n	120, Bishopsgate-st.
Brit. S. A. Char.	2 15/16 3 1/16	3⅜ 3⅝	1 0	rts Jy 26 '95	1 0 0	1,999,750	S. Africa	15, St. Swithin's-lane
Buffelsdoorn..... G	2⅜ 2¾	2 13/16 2 15/16	1	16/- Nv. 28 '95	1 0 0	250,000	Potchefstr	7, Lothbury.
„ Central	⅜ ½	⅜ ½	1 0	—	1 0 0	—	—	8, Old Jewry
„ Consolidated	⅞ ¾	11/16 15/16	1 0	—	1 0 0	225,000	—	Warnford Court
Cape Asbestos	¾ ⅞	¾ 1	1 0	—	1 0 0	50,311	Orange Rv	19, St. Swithin's-lane
„ Copper C	2⅜ 2½	2 3/16 2 5/16	2 0	2/ June 12, '96	2 0 0	300,000	Cape Col.	9, Queen-street-place,
„ 6% Pref. ...	2⅜ 2⅝	2⅜ 2⅝	2 0	2/ June 12, '96	2 0 0	45,000	„	„
Cassel Con.....	1⅞ 2	1 15/16 2 1/16	1 0	1/6 Apr. 29 '94	1 0 0	75,000	Johanbrg.	99, Cannon-street.
Cen. de Kaap	/9 1/3	/9 1/3	5/-	—	0 5 0	240,000	De Kaap	Palmerston Bldgs
„ Roodp't Deep	1¼ 1	1⅞ 2	1 0	—	1 0 0	220,000	—	120, Bishopsgate st.
Champ d'Or..... G	1¾ 2⅛	1¾ 2⅛	1 0	3/2 Feb. 27 96	1 0 0	116,016	Rand	8, Old Jewry, E.C.
Charterland G.F ...	⅜ ½	⅜ ½	1 0	—	1 0 0	150,000	—	19, S. Swithin's lane
Chimes West	1 1⅛	1⅛ 1⅜	1 0	—	1 0 0	150,000	—	Winchester Ho.
City and Sub.NwG	4⅜ 4⅞	4⅜ 5	4 0	10/- June'95	4 0 0	340,000	Rand	Gresham Ho.
Con. Bultfontein D	31/6 32/6	31/6 32/6	1 0	9d.July 15,'96	1 0 0	721,500	Griqualnd	62, Lombard-st.
Con. Deep LevelsG	5 5½	5 5½	1 0	4/- Jy 15, '96	1 0 0	187,250	Transvaal	30, St. Swithin's-lane
Con. G. Fields S A.	12⅜ 12¾	12¾ 13⅛	1 0	10/ May 19 '96	1 0 0	1,250,000	S. Africa	8, Old Jewry,
Do. 6 % Pref.	24/ 25/	24/ 25/	1 0	7 1-2d Jne26'96	1 0 0	1,243,999	„	„
Do. 5½ % Deben...	105 110	108½ 109½	5 0	5½ % July1,'96	5 0 0	0C0,000	„	„
Crown Deep .....G	12¾ 12¾	12¾ 12¾	1 0	—	1 0 0	250,000	Rand	120, Bishopsgate-st.
„ Mest .....G	10⅞ 11⅛	11⅛ 11⅜	1 0	10/-Apr. 29 '96	1 0 0	120,000	„	„
DeBeers Consol. D	28 5/16 28 7/16	29 7/16 29 9/16	5 0	22/- July15 '96	5 0 0	789,791	Kimberl'y	62, Lombard-street.
Do. 5% 1st Deb....	108½ 109½	109¾ 110½	—	5% July 1 '96	—	£3,500000	„	„
Do. 5½% Bul. Ob.	104 106	104 106	—	5½% Apr. 1 96	—	720,000	„	„
Doornkop	5/ 6/	5/ 6/	1 0	—	1 0 0	250,000	Doornkop	Warnford Court
Driefontein	2¾ 2⅝	2⅝ 2⅞	1 0	—	1 0 0	175,000	—	Winchester Ho.
Durban Roodept. G	6¼ 6¾ xd	6⅝ 6¾ xd	1 0	3/- Sept.16'96	1 0 0	£125,000	Rand	28, Leadenhall-bldgs
„ Deep.....	4 4½	4⅜ 4⅝	—	—	—	—	—	
Eastleigh .....G	¾ ⅞	15/16 1	1 0	rts May 14 '96	1 0 0	240,000	Klerksdrp	52, Leadenhall Street
East Orion..... ...	⅛ ¼	⅜ ½	1 0	—	1 0 0	275,000	Rand	8, Old Jewry.
„ Rand.....G	6 11/16 6 13/16	7 7⅛	1 0	—	1 0 0	570,000	„	170, Winchester-ho.
Exploration	2¾ 3	2⅞ 3⅛	1 0	rts June 26 '96	1 0 0	148,000	S. Africa	30, 8, Swithin's-in.‖
Exploring L & M...	1 15/16 1 31/32	1 15/16 1 15/16	1 0	2/ Dec. 16, '95	1 0 0	216,215	„	„
Ferreira .....G	19 20	19½ 20	1 0	25/ Aug. 28'96	1 0 0	45,000	Rand	120, Bishopsgt st. Wn‖
French Rand	2⅞ 3	2⅞ 3⅛	1 0	—	1 0 0	480,000	Rand.....	28, Austin Friars.
Geldenhuis DeepG	5⅜ 5¾	5 5¼	1 0	—	1 0 0	265,000	Transvaal .	30, St. Swithin's-lane
Geldenhuis Est. G	3 11/16 3 13/16	3⅝ 3⅞	1 0	6/- Jy 26 '95	1 0 0	187,500	Rand	120, Bishopsgt st. Wn‖
„ Main Reef	1 15/16 2 1/16	1 15/16 1 31/32	1 0	2/ Feb, 13 96	1 0 0	150,000	„	Warnford Court, E.C
George Goch ...G	1 13/16 2 1/16	2 1/16 2 3/16	1 0	—	1 0 0	100,000	„	Johannesburg.
Ginsberg New ...G	2 2¼	2⅛ 2¼	1 0	—	1 0 0	130,000	Driefton .	Warnford Court, E.C‖
Glencairn .....G	2⅞ 3⅛	3 3⅛	1 0	2/6 Feb. 13 '96	1 0 0	200,000	Rand	2, Drapers-gardens.
Golden Dove	1⅛ 1¾	1¾ 1⅞	1 0	—	1 0 0	60,000	Natal	65, Chancery Lane.
Gld. Fls. Deep...G	9⅞ 10⅜	10⅜ 10⅝	1 0	—	1 0 0	600,000	S. Africa	8, Old Jewry.
G.F. of Lydenb'rg	2⅝ 3	3 3⅛	1 0	—	—	—	Lydenb'rg	7, Lothbury.
G. F. of Mashonld.	¾ ⅞	¾ ⅞	1 0	—	1 0 0	200,000	Mashonld.	19, St. Swithin's-ln.
G.F. of T.de Fuego	12/ 12/6	12/ 12/6	—	—	—	—	—	75, Lombard Street.
Graskop .....G	4/6 5/	4/9 5/3	5/-	2½% Mar. '92.	0 5 0	400,000	Lydenburg	2, Tokenhouse Bldgs
Gt. Estrn. Colliery	1 1⅛	1 1⅛	1 0	—	1 0 0	376,666	Grootolei	Gresham House.
Griqualand W....D	8 8¼	8 8¼	10 0	4/ July 15, '96	10 0 0	105,700	Transvaal .	62, Lombard-street
Heidelbg. Est. Ex:	⅜ ¾	⅜ ¾	1 0	—	—	—	Heildelbg.	
Henderson's Trans	2¼ 2¾	2 5/16 2 7/16	1 0	—	1 0 0	250,000	Zoutpan.bg	85, Gracechurch st.
Henry Nourse ...G	6⅝ 6¾	6⅝ 6¾	1 0	—	1 0 0	100,000	De Kaap ...	Warnford-court.
Hetty	9/16 11/16	9/16 11/16	1 0	—	1 0 0	110,000	Middlevel.	55, Bishopsgate st Wn
Joe's Reef .....G	5/16 5/16	5/16 5/16	1 0	—	1 0 0	57,464	„	21, Mincing Lane.
Johannesbrg Invst	3⅜ 3⅝	3 11/16 3 13/16	1 0	1/ July 15, '96	1 0 0	650,000	—	7, Lothbury.
„ Pioneer	9 10	9 10	1 0	12½% Nov.,'93	1 0 0	21,000	Rand.....	Johannesburg.
Jubilee .....G	8⅜ 9⅛	8⅜ 9⅜	1 0	2/ July 30 '96	1 0 0	30,000	„	8, Old Jewry.†
Jumpers .....G	6¼ 6⅜	6⅛ 6⅜	1 0	6/- Mar. 27 '96	1 0 0	100,000	„	120, Bishopsgt st. Wn‖
„ Deep.....	5 6	5 6	1 0	—	1 0 0	300,000	„	30, 8. Swithin's lane
Kimberley .. ..D	5/16 5/16 pm	¼ ¼pm	1 0	1/ June 26, '96	0 10 0	98,672	Kimberley	19, Finsbury circus
„ Rdpt....	2⅜ 2¾	2⅜ 2⅝	1 0	—	1 0 0	125,000	„	2, Drapers-gardens.
Kleinfontein Con.	⅛ 1	⅜ ⅞	1 0	—	1 0 0	225,000	E. Rand ...	Winchester House
Klerksdorp	12/9 13/3	13/9 14/3	10/-	—	0 10 0	400,000	Klerksdorp	110, Cannon St.
Knight's Deep	2⅜ 2⅝	2⅛ 2⅜	1 0	—	1 0 0	295,194	Rand..... ...	8, Old Jewry
Koffyfontein.....D	1 5/16 1 7/16	⅞ 1	1 0	x.rts.Jun10'96	1 0 0	125,000	Jacobsdaal	6, Gt. St. Helen's.
Lancaster	2⅜ 2⅝	2⅛ 2⅜	1 0	—	1 0 0	225,500	Luip. Vlei	120, Bishopsgt st. Wn
Langlaagte Est. G	5¾ 5¾	5¾ 5¾	1 0	3/ July 30 '96	1 0 0	470,000	Rand.....	59, Holborn Viaduct
„ Royal	1 15/16 2 1/16	2⅛ 2⅜	1 0	rts. Mar. 6 '95	1 0 0	100,000	„	2, Drapers-gardens.
„ Star...	1¾ 1¾	1¾ 1⅝	1 0	—	1 0 0	170,000	„	
Lisbon-Berlyn ...G	5/9 6/3	5/9 6/3	2/6	—	0 2 6	883,233	Lydenburg	Suffolk House,
Lon, Paris Fin & M.	¾ ⅞	1 1/16 1 3/16	1 0	—	1 0 0	500,000	—	53, Old Broad Street
London & S. A. Ex.	15¾ 16¼	15 15⅜	1C/	4/- June 26 '96	0 10 0	100,000	S. Africa ...	19, Finsbury-circus.
Luipaards Vlei Est.	1⅞ 2⅛	2¾ 2⅜	1 0	6% Mar.'90	1 0 0	319,003	Rand.....	Warnford-court.‖
Lydenburg Estate.	1 9/16 1 11/16	1 13/16 1 15/16	1 0	—	1 0 0	190,000	Lydenburg	85, Gracech. Street
„ Ld & Exp.	⅞ 1⅛	¾ ⅞	1 0	—	1 0 0	200,000	„	120, Bishopsgte St.
„ M'g. Est.	6¾ 7	7 7¼	1 0	—	1 0 0	300,000	„	„
Main Reef (New)G	1⅜ 1⅜	1 5/16 1 7/16	1 0	—	1 0 0	111,500	Rand.....	15, George St., MnH
Malmani Gold Syn	2/ 4/	2/ 4/	2/6	—	0 2 6	200,000	Transvaal	Throgmorton House
Marie Louise.....	2⅞ 3¼	2⅞ 3⅛	1 0	—	1 0 0	60,000	Rand.....	15, George St , Mn H
Marievale Nigel ...	⅞ 1	⅞ 1⅛	1 0	—	1 0 0	250,000	„	„
Mashon. Agency...	2 2¾	2 2⅜	1 0	2/ Ap. 16 '96	1 0 0	100 000	Mashonald	8, Old Jewry, E.C.
„ Central...	15/16 1 1/16	⅞ 1	1 0	—	1 0 0	180,000	„	„
Matabeleil'd G. R't	4¼ 4⅜	4⅜ 4⅝	1 0	—	1 0 0	110,000	Matabeleil'd	3, Copthall-buildings
May Con. (New) G	2⅜ 2⅝	2⅜ 2¾	1 0	2/- Mar. 12 96	1 0 0	236,500	Rand..... ...	4, Lothbury.‖
Meyer & Charl....G	5¾ 6⅛	5¾ 6	1 0	5/ Feb. 13 96	1 0 0	76,020	„	1, Crosby Square.‖
Minerva	⅜ ⅝	⅜ 1	1 0	—	1 0 0	150,000	„	Winchester House.
Mines Selection ...	⅞ 1⅛	⅞ 1⅛	1 0	—	1 0 0	100,000	—	33, Br'd St. Avenue,
Modderfontein...G	6 6¼	6⅜ 6⅞	1 0	rts Aug. 28 '96	1 0 0	200,000	Rand.....	13, George Street
„ 'B" Extensn.	1 15/16 1 31/32	1 9/16 1 11/16	1 0	—	1 0 0	225,000	—	28, Austin Friars
Molyneux Consoll.	1⅛ 1⅜	1 7/16 1 9/16	1 0	—	1 0 0	220,000	Modderfin	120, Bishopsgate st
Moodies .....G	1 5/16 1 7/16	⅞ 1	1 0	-/4 May '90	1 0 0	240,000	„	Gresham House.
Mozambique.....	1⅜ 1⅝	1⅜ 1⅝	1 0	—	1 0 0	400,000	S.E. Africa	13, Austin Friars.
Namaqua C	1⅝ 1⅞	1⅝ 1⅞	2 0	3/- July 15 '96	2 0 0	94,331	Namaquald	34, Leadenhall-bldgs.
New African	3 3¼	3⅛ 3⅜	1 0	5/ July 15 '96	1 0 0	190,000	—	83, Hatton Garden.
„ Bultfontein D	1 9/16 1 11/16	1⅝ 1⅞	1 0	1/- July 30 '96	1 0 0	150,000	Griql'd. W.	6. Drapers Gardens
„ Chimes..... G	1 1⅛	1⅛ 1⅜	1 0	1/- Mar. 27 '96	1 0 0	100,000	Rand.....	8, Old Jewry, E.C
„ Comet	2¼ 2⅜	2⅜ 2⅝	1 0	—	1 0 0	175,000	Heidelburg	Winchester-house.
„ Crœsus..... G	1 15/16 1 31/32	1 15/16 1 31/32	1 0	rts Apr 17 '95	1 0 0	255,000	Langlaagte	120, Bishopsgt. st. Wn
„ Heriot ..... G	9 9¼	8⅞ 9⅛	1 0	5/ July 30, '96	1 0 0	88,750	Rand.....	96, Gresham Ho EC
„ Jagersf. ..... G	9⅛ 9⅜	9⅞ 10	5 0	10/ Apr. 15 '96	5 0 0	200,000	Transvaal .	5, Copthall-buildings
„ Kleinfontein G	2 5/16 2 7/16	3⅛ 3⅜	1 0	12½pc Mar,'96	1 0 0	82,500	Rand.....	Winchester House
„ Midas	2 2⅛	2⅛ 2⅜	1 0	rts.Jan. 16, '96	1 0 0	150,000	Mid'le Vlei	120, Bishopsgt-st. W
„ Primrose ....G	5⅛ 5⅜	5⅝ 5⅞	1 0	5/ Feb. 13, '96	1 0 0	272,750	Rand.....	2, Draper's-gardens.
„ Rietfontein G	3 3⅛	3⅛ 3⅜	1 0	—	1 0 0	160,000	„	Warnford-ct., E.C.
„ S.Augustine D	8/8 9/	9/ 9/8	1 0	—	0 19 6	299,137	Griqu'ld W	30-1, St. Swithin's-l,
„ Spes Bona...G	1⅜ 1⅝	1⅝ 1⅞	1 0	—	1 0 0	112,701	Rand.....	24, N. John-st., E.C
„ Sheyn Estate	1⅜ 1⅝	1 11/16 1 15/16	1 0	—	1 0 0	125,000	Heidelber	19 Bury Street pl

AFRICAN MINES—(*Continued*).

Name.	Closing Price, Sept. 25, 1896	Closing Price, Sept. 18, 1896.	Am't. of Share	When last XD and Dividend.	Called up Per Share.	Amount of Stock or No. of Shares (issued.	Situation of Mine.	Head Office.
			£		£			
Nigel ..... G	2⅞ 3⅛	2⅞ 3⅛	1 0	rts Aug 10 '95	1 0 0	160,000	Rand.....	96, Gresham Ho., EC
„ Deep .....G	1⅜ 1⅝	1½ 1⅝	1 0	—	1 0 0	195,000	Heidelberg	8 Old Jewry
North Charterland	5/- 7/- nom	5/ 7/ nom	1 0	—	1 0 0	80,000	—	Winchester House
„ Randfontein	1⅜ 2⅝	2 2¼	1 0	—	1 0 0	235,000	—	8, Princes street
Nourse Deep.....	5 5⅛	5¼ 5¾	1 0	—	1 0 0	375,000	Rand.....	120, Bishopgt.-st., Wn
Oceana Consolidatd	1¼ 1⅜	1¾ 1⅝	1 0	—	1 0 0	—	Wtrbg Lyn	13, Austin Friars.
„ Developmnt	5/16 7/16	5/16 11/16	1 0	—	1 0 0	50,000	Heidelbrg.	
„ Minerals ...	9/16 11/16	9/16 11/16	1 0	—	1 0 0	5.0,000	„	„
Orange F.S.E. ...D	3¼ 3⅜	3¼ 3¾	1 0	2/6 Apr.,29, 96	1 0 0	284,000	OrangeF.S.	10, Moorgate-street.
Orion (New).....G	¾ ⅞	¾ ⅞	1 0	10% Aug. '95	1 0 0	30,000	Rand.....	8, Old Jewry.
Paarl Central ... G	1⅝ 1⅞	1⅜ 1⅝	1 0	—	1 0 0	138,750	Transvaal .	120, Bishopsgt st. Wn
Pardy's Mozambq.	1⅝ 1⅞	1⅝ 1⅞	10/	rts Mar 12 '96	0 10 0	60,000	S.E. Africa	Broad St. Avenue.
Piggs Peak .....G	⅝ ¾	¾ ⅞	1 0	—	0 19 0	200,000	Swazielnd.	4, Sun Court,
Porges Randfontn.	1⅜ 1⅝	1⅛ 1⅝	1 0	2/ Feb. 13 '96	1 0 0	437,500	Rand.....	1, Bank Buildings
Potchefstroom... G	⅜ ⅝	9/16 11/16	1 0	—	1 0 0	389,750	Potchefst...	19, Bury-st., E.C.
Princess Estate G	2⅝ 2⅞	2⅞ 2⅞	1 0	—	1 0 0	125,000	Rand.....	33, Cornhill, E.C.
Rand Central Ore	1⅝ 1⅜	1⅜ 1⅝	1 0	25 p c Aug. 95	1 0 0	115,000	—	8, Princes-street, E.C
Randfontein .....G	2 11/16 2 13/16	2 13/16 2 15/16	1 0	xr uns 96	1 0 0	1,000,000	Rand.....	1, Bank Buildings.
Rand Mines ..... G	28⅝ 28¾	29½ 30	1 0	—	1 0 0	332,798	„	120, Bishopsgt st. Wn‖
Rand-Rhodesia Ex	¾ 1	1 1⅛	1 0	10 p.c. Oct. '95	1 0 0	25,000	R&Rhodesa	123, „
Rhodesia Ex & Dv.	5½ 6	6 6⅛	0	—	1 0 0	50,000	Mt &Mash'l	15 & 16, Geo. St. E.C
Robinson(SA)Bank	5⅝ 6	5⅝ 6⅛	4 0	4/ Apl. 15, 96	4 0 0	750,000	—	8, Prince's-street
„ Deep.....	9 9⅛	9⅛ 10	1 0	—	1 0 0	500,000	M'nR'f'nd	120, Bishopsgate st.
„ Diamond	1 9/16 1 11/16	1⅝ 1¾	1 0	—	1 0 0	350,000	Kaal Valley	8, Prince's street
„ Gold.....	6⅛ 9	8⅛ 9	5 0	5/ July '96	5 0 0	550,000	M. Rf.'rand	28, Austin Friars
„ Randftn.	1⅛ 1¾	1⅛ 1⅜	1 0	—	1 0 0	617,000	Rand.....	8 Prince's-street.
Roodepoort Deep	2⅜ 2⅜	2⅜ 2⅝	1 0	—	1 0 0	170,000	„	8, Old Jewry, E.C.
Roodepoort Un. G	4⅜ 4⅞	4⅞ 5⅛	1 0	2/ July 30 '96	1 0 0	130,000	„	Warnford-court.‖
Rose Deep.....	5 5⅛	5¼ 5¾	1 0	—	1 0 0	300,000	M. Rf.'rand	30-31, S.Swith'n. lne.
Rothery Block.....	¼ ¾	8/ 10/	1 0	—	—	—	—	55, Bishopsgate st
Sacke Estates	1⅛ 1⅜	1⅛ 1⅜	1 0	2/ June 12 '96	1 0 0	225,000	—	19, Bury Street.
St. Helen's Devel.	2⅜ 2⅝ nom	2⅜ 2⅝ nom	1 0	—	1 0 0	47,950	S. Africa ...	13, S. Helen's Place.
Salisbury New ...	3⅞ 4⅛	3⅞ 4⅛	1 0	—	1 0 0	95,000	Rand.....	96, Gresham Ho., EC
Sheba .....G	1 15/16 2 1/16	1 15/16 2 1/16	1 0	1/- June28 '96	1 0 0	850,000	Lydenburg	18, S. Helen's place.
Simmer & Jack...G	6 7	6 7	5 0	2/ Aug 14 '95	5 0 0	940,000	Rand..... ..	8, Old Jewry.
S.A GoldTrustNew	7½ 7¾	8¼ 8⅜	1 0	7/6 Jun 26 '96	1 0 0	250,000	S. Africa ...	„
South West Rand	5/16 7/16	5/16 7/16	1 0	—	1 0 0	158,000	Rand.....	Winchester Hous.
Spitzkop (New) G	1 1⅛	1 1⅛	1 0	—	1 0 0	99,070	Lydenburg	15, Bishopsgt-st, Wn.
Stanhope .....G	1 1⅜	1 1⅜	1 0	2/- Oct 20 '95	1 0 0	34,000	Rand..... ..	96, Gresham Ho., EC
Sutherland R. ...G	2/ 2/8	1/9 2/3	1 0	—	1 0 0	220,000	Zoutpan bg	Dashwood Ho.
Tati Concessions ...	1 9/16 1 11/16	1⅝ 1⅝	1 0	rts Jy. 22 '95	1 0 0	392,000	—	Gresham House.
Trans. Coal Trust...	1⅝ 1⅞	1 15/16 1 9/16	1 0	1/-Apr. 29, 96	1 0 0	439,965	Rand..... ..	Broad-st. House, E.C
„ Consolidatd	1⅞ 1⅞	1⅞ 2	1 0	—	1 0 0	485,131	Transvaal	3, Bishopsgate-st Wn
„ Est. & Dev.	1 15/16 1 31/32	1 15/16 1 31/32	1 0	—	1 0 0	423,600	„	30, New Broad-st. E.C
„ Gold Fields	3⅛ 3⅜	3¼ 3⅜	1 0	8/- Apr. 15 '96	1 0 0	135,000	S. A. R.....	120, Bishopsgt.-st. Wn
„ Land.....	⅛ ⅜	⅛ ⅜	1 0	—	1 0 0	79,915	Transvaal .	25, Abchurch Lane.
Treasury.....G	2⅜ 2⅝	2½ 3	4 0	12½% Sep.'94	4 0 0	135,000	Rand.....	Warnford Court.
United Exploratn.	1 1⅛	1⅛ 1⅜	1 0	—	1 0 0	250,000	—	123, Bishopsgate St.
„ Ivy Reef.....G	1 1/16 1 1/8	⅞ 1	1 0	/6 June 26 '96	1 0 0	45,000	Transvaal .	110, Cannon-street.
„ Langlaagte(N)G	⅜ ⅝	⅜ ⅝	1 0	—	1 0 0	148,000	Rand.....	85, Gresham Ho., EC
„ Mines Bultf. D	1⅛ 1¾ nom	1½ 1¾ nm	1 0	1/ Aug. 28,'96.	1 0 0	125,000	Kimberley	120, Bishopsgate S.
„ Pioneer.....	⅜ ⅝	⅜ ⅝	1 0	—	1 0 0	75,000	De Kaap ...	16, S. Helen's-pl., E.C
Van Ryn ..... G	4 4⅛	4⅜ 4½	1 0	4/- Jan. 16	1 0 0	160,000	Rand.....	13, St. Swithin's-ln.
„ North ...	½ ¾	⅝ ¾	1 0	—	1 0 0	116,091	—	„
„ West.....	2 2¼	2¼ 2⅜	1 0	—	1 0 0	120,000	Rand	„
Venterskroon	1⅜ 1½	¾ 1	—	—	1 0 0	125,000	Rooderand	8, Old Jewry
Vesta	⅝ ¾	⅝ 1⅛	1 0	—	1 0 0	130,000	Rand	Winchester House
Village Main Reef	6 6¼	6½ 6⅝	1 0	rts June 26' 96	1 0 0	177,000	„	8, Old Jewry.
Vogelstruis Estate	4¼ 4½	4¼ 4⅝	1 0	—	1 0 0	200,000	„	Winchester House.
„ Cons. Deep ...	2⅝ 2⅞	2¾ 2⅝	1 0	—	1 0 0	327,750	„	16, Geo. St. Mn.
Wassau .....G	1 1⅜	⅞ 1	1 0	—	1 0 0	100,000	Gold Coast	147, Cannon-street
Wemmer .....G	8⅛ 8¾	8¾ 9	1 0	10/ Apr. 29 96	1 0 0	55,000	Rand..... ..	19, Bury-street.‖
Western Nigel.....	⅜ ⅝	⅜ ⅞	1 0	—	1 0 0	207,000	Main Reef	Suffolk House.
West Rand.....G	1⅞ 2⅛	2 1/16 2 3/16	1 0	—	1 0 0	240,000	Rand.....	13, Geo. St., Mans Ho.
Willoughby's Con.	1 15/16 1 31/32	1⅛ 1⅜	1 0	—	1 0 0	700,000	Mashonald

"THE MINING JOURNAL" SHARE LIST—(Continued)

AUSTRALIAN AND NEW ZEALAND MINES.

Name.	Closing Price, Sept. 25, 1896	Closing Price, Sept. 18, 1896.	Am't. of Share	When last XD and Dividend.	Called up per Share.	Amount of Stock or No. of Shares Issued.	Situation of Mine.	Head Office
Aladdin's Lamp *G*	2⅜ 2⅝	2⅝ 2¾	1 0	2/ July 15 '96	1 0 0	100,000	L'knN S.W	4-6, Throg. Avenue.
Anglo-Cont. Corp.	1 1¼	1⅜ 1⅜	1 0	100 % '95	1 0 0	125,000	—	Worcester House.
" French Exp	13/16 15/16pm	13/16 15/16pm	1 0	x.nwAug 28'96	0 10 0	40,000	W. Austral	3, Princes Street.
" Ger.Explor.	1 1⅛pm	1 1⅛pm	1 0	5/ Oct. 30'95	0 10 0	40,000	"	"
Arobe *G*	1 1⅛	1¼ 1⅛	1 0	—	1 0 0	100,000	N. Zealand	30, S. Swithin's Lane
Arrow BrownhillG	¾ ⅞	¾ ⅞	1 0	—	1 0 0	90,007	Cool., W.A.	4, Gt. Winchester St.
Assoc. Gold Mines	2 15/16 3 1/16	3⅜ 3⅝	1 0	bo June 26 '96	1 0 0	375,000	"	20, Bucklersbury
Australasiac ..... *C*	4/3 5/0	4/6 5/6	20 0	1/-July 30 '96	7 7 6	218,315	Gymp.Q'ld	8, Queen-st. place
Australian ..... *C*	—	—	1 0	1/- June, '91	0 19 3	574,799	S. Austral,	42, New Broad-street
Aus. Pro. Hill Con.	1/ 1/6	1/ 1/6	1 0				BarR.NSW	Winchester House.
Baker's Creek ...*G*	⅝ ¾	⅝ ⅞	1 0	1/- May '95	0 17 6	600,000	H'gveNSW	Hillgrove, N.S.Wales
Bamboo Queen & R	⅞ 1	⅞ 1⅛	1 0	—	1 0 0	—	Pilb., W.A.	38, Coleman Street.
Bayley's Reward *G*	4/6 5/6	4/6 5/6	1 0	-/4 Dec. 94	1 0 0	480,000	Coolgardie	F.ab'y, H. Bl'mf'ld St.
Big Blow ..... *G*	⅟ 6/	7/ 8/	1 0	—	1 0 0	120,000	"	151, Cannon Street.
Black Flag Consld.	1⅛ 1⅝	1⅛ 1⅜	1 0	—	1 0 0	140,000	Coolgardie	4, Bishopsgate St. Wn
Propty.	2/6 3/	⅛ ⅜	2/6	—	1 0 0	600,000	Coolgardie	1, Metal Exch. Bldgs
Blagroves Freehld	10/ 11/-	10/- 11/-	1 0	—	1 0 0	82,298	Otago, N.Z.	6-8, Great St. Helen's
Blue Spur and G.*G*	7/ 8/	7/8 8/8	1 0	—	0 19 0	120,000	C. T.Q'land	16, S. Helen's Place
Bonnie Dundee *G*	⅞ 1	1 xd	2 0	/4 Sept. 16, '95	2 0 0	250,000	"	Charters Towers.
Brilliant..... *G*	15/16 1 1/16	15/16 1 1/16	1 0	-/6 Dec. 16 '95	1 0 0	70,000	"	16, S. Helen's Place
Block... *G*	1⅜ 1¾xd	1½ 1¾ xd	10/	/9 Sept. 15, '95	0 10 0	72,000	"	Charters Towers.
St.Geo.*G*	11/16 1 5/16	11/16 1 7/16	1 0	—	1 0 0	240,000	N.S. Wales	Dashwood Ho., E.C.
B'k. Brok. Hill *S*	2/ 3/	2/ 3/	5/	—	1 0 0	400,000	W.Feather	57, Moorgate Street.
Broad Arrow	2 5/16 2 7/16	2¾ 2¾	8/	1/- Aug. 28 '96	0 8 0	960,000	N. S. Wales	3, Gt. Winchester st.
Broken Hill Prop.*S*	⅞ 1	5/16 7/16	1 0	—	1 0 0	67,500	Hannan's	4, Gt. Winchester st
Brownhill Prouty.	⅞ 1	2¼ 2⅜	1 0	—	1 0 0	150,000	Coolgardie	Copthall House.
urbank aBirthd'y	2⅛ 2¼							
Cassidy Hill ..... *G*	⅛ ⅝	9/16 11/16	1 0	—	1 0 0	115,000	"	9-10, King Street, E.
Central Sounder *G*	¾ ⅞	13/16 15/16	1 0	—	1 0 0	93,522	K'lg'rl, WA	Wor'st'r Ho., Walbr'k
" Exp. & Invst.	¾ ⅞ dis	1/16 1 1/16pm	1 0	4/8d Mar 12'96	1 0 0	200,000	W. Austral	1, Met. Exchg. Bldgs
" of W. A.	¾ ⅞	¾ ⅞	1 0	1/7¼Mar 27 96	1 0 0	122,000	"	2, "
" " *G*	1/ 1/6	1/3 1/9	10/	—	0 9 6	200,000	Queensind	110, Cannon Street
Charters Tow. ...*G*	3⅛ 3½ pm	3⅛ 3¾pm	1 0	10/ Mar. 27 '96	0 10 0	21,140	W. Austral	139 "
Colonial Finance...	⅜ ⅝pm	⅜ ¾ pm	1 0	—	0 12 6	75,250	"	70, Cornhill.
" Gold Fields	⅝ ¾	5/16 7/16	1 0	—	1 0 0	246,779	Pilbarra ...	30, Moorgate Street.
Con. G. M. of W. A.	⅝ ¾	⅝ ¾	1 0	—	1 0 0	225,533	Murc., W A	Broad Street House.
" Murchison ...	⅜ ½	⅜ ½	1 0	—	1 0 0	104,467	W. Austral	"
Consl. & W.A. Trust	¾ 1	¾ 1	10/	x.rts.Jun12'	0 5 0	90,000	Ccol. W.A.	Broad Street Avenue
Coolgardie Gold ...	1⅝ 1 11/16	1 13/16 1 15/16	1 0	—	1 0 0	150,000	"	30, S. Swithin's ln.
" Mint & I.Kg.	1 1/16 2/	1/6 2/6	8/	-/3 June 94	0 4 8	100,000	Queensind	30-1, S. Swithin's-ln
Craven' Cal. ... *G*	1/6 2/	1/6 1/6	1 0	—	1 0 0	115,000	Hann's WA	Blomfield House
Crocess So. United	13/16 15/16	13/16 1 1/16	1 0	—	1 0 0	75,000	—	110, Cannon-st., E.C.
Crown United.....	1 1/16 1 3/16	1½ 1⅝	1 0	2/6 Dec. '87	0 19 0	184,090	Queensind	Blomfield House. E.C
Cumbrid (New)*G*	⅞ ⅞	⅞ ⅞	1 0					
DayDawn D.A.W.*G*	11/ 12/xd	13/6 14/6	1 0	-/6 Sept.16,'96	1 0 0	493,400	"	16, S. Helen's Place
" P. C. *G*	3/3 3/8	3/3 3/9	1 0	-/6 Apr, '92	1 0 0	490,000	"	Winchester Ho., E.C
Eaglehawk.....*G*	1/ 1/6	1/ 1/6	1 0	—	0 18 0	120,000	Victoria ..	71-72, King Wm. St
Eagle's Nest.....	1 5/16	7/8 1	1 0	—	1 0 0	2,500	Mt. Margrt	Finsbury House.
East Hauraki	2/ 3/	2/ 3/	5/	—	0 5 0	400,000	Haur'ki NZ	"
Eastern Syndi. ...	1/16 1/8 pm	¼ ⅜ pm	1 0	1/8 April 29'96	1 0 0	9,000	W.Austral	Copthall House
Fingall L'ls. Exld	⅜ ½	5/16 7/16	1 0	-/4 Jan. 16 '96	1 0 0	150,000	"	4, Sun Court
Florence..... *G*	⅜ 1	1 1⅛	1 0	—	1 0 0	60,000	"	18, St. Swithin's ln
Gibraltar Cons.....	15/16 1 1/16	15/16 1 1/16	1 0	—	1 0 0	300,000	N S Wales	6, Queen street-place
Gladiator ..... *G*	15/16 1 1/16	15/16 1 1/16		—	1 0 0	—	W. Aus ral	43, Threadneedle st
Glenrock ..... *G*	1/3 1/6	1/3 1/9	10/-	—	0 8 6	450,000	N. Zealand	3-5, Queen-st, E.C.
Golden Cement *G*	15/16 1 1/16	⅞ 1	1 0	—	1 0 0	175,000	W.Austral	3, Princes Street, EC
" Crown... *G*	1⅛ 1¼	1⅛ 1⅛	1 0	—	1 0 0	100,000	"	54, Old Broad Street
" Gate..... *G*	1/ 2/	1/ 2/	10/	—	0 10 0	150,000	Queensind	34-36, Gresham-st
" Horse Shoe...	1¼ 1⅜	1⅛ 1¼	1 0	—	1 0 0	—	W.Austral	13. Helen's Place
" Link ..... *G*	⅝ ¾	15/16 1 1/16	1 0	5/- Oct 30' 95	1 0 0	90,000	"	9-10. King Street, E.C
" Plum..... *G*	⅜ ⅝	½ ⅝	1 0	—	1 0 0	120,000	"	4, Bishopsgate Street
Gold Estates.....	1⅛ 1¼	1⅞ 2⅛	1 0	3/ June 12 '96	1 0 0	60,000	"	20, Bishopsgate-st Wn
Great Boulder ...*G*	6¼ 6 7/16	6 15/16 7 1/16 xd	1 0	/- Sept. 16, '95	1 0 0	240,000	Yilgarn ..	3, Gracechurch st.
" Junction	1 1⅛	1 1⅛	—	—	—	—	"	Wore. Ho., Walbrook
" M'n R'ts	1⅜ 1⅝	1 1/16 1 3/16	0/	—	0 10 0	240,000	"	3, Princes Street,
" Fingall Ests.	1/16 1/8	⅜ ½	1 0	⅞ Jan. 16, '96	1 0 0	175,000	Kurnalpi	Broad Street House
Graham Synd. ..	1/16 1/8 m	1/8 dis 1/16pm	1 0	1/ &bo Jul2'96	1 0 0	50,000	W. Austral	13-14, Abchurch ln
Halsall	2⅛ 2⅜	2⅜ 2⅝	—	—	—	—	—	82, Gordon st., Glas.
HamptonGoldFlds	⅞ 1	⅞ 1	1 0	—	0 10 0	—	—	9, S. Mildred's Ct
" GoldHill	1/6 2/	1/6 2/	1 0	—	—	—	—	53-54, Gracechurch st
" Plains..	3 15/16 3 15/16	3⅞ 4	1 0	rts May 14 '96	1 0 0	300,000	Cool. W.A.	29, S. Swithin's lane
" Plains x	6 6 7/8	6 6 7/8	1 0	—	0 18 0	130,000	"	Suffolk House, E.C
Hannan's BrownHill	6 6¼	6¼ 5½	1 0	—	1 0 0	65,000	"	Broad Street House
" Devel'pm'nt	1⅜ 1¾	1⅜ 1¾	1 0	—	1 0 0	147,000	"	5, Moorgate-st. bldgs
" Main Reef...	3/ 8/	3/ 10/	10/	—	0 1. 0	—	Kalg. W.A.	18, St. Swithin's ln.
" North.....	1 5/16 1 7/16	1 1/16 1 3/16	1 0	—	1 0 0	51,167	"	33, Cornhill.
" 100 Acre.....	⅝ ¾	⅞ 1	1 0	—	—	—	"	Dashwood House.
" Oroya	1⅛ 1⅜	1⅛ 1⅜	1 0	—	1 0 0	—	"	20, Bucklersbury
" Prop.	1¾ 1⅞	1¾ 1⅞	1 0	—	0 10 0	—	"	139, Cannon Street.
" Reward... *G*	1⅛ 2⅛	25/16 27/16	1 0	—	1 0 0	70,000	Hann. W A	Bartholomew Ho,
" Star.....	15/16 1 7/16	1⅛ 1⅛	1 0	—	1 0 0	—	E.Coolgde.	Finsbury House E.C
Hauraki..... *G*	17/6 18/6	17.6 18/6	2/6	rts Aug. 13 '96	0 2 6	30,000	Coromndl.	Dashwood Ho., E.C
Hit or Miss	2 2½	2¼ 2⅜	1 0	—	1 0 0	120,000	Cool., W.A.	1, Queen Vic St.
Idaho .....*GS*	4/3 4/9	4/6 5/	5/	/6 Jan. 16 '96	0 4 8	143,439	W. Austral	Copthall House.
Kaiponga .....*G*	1/ 1/6	1/ 1/6	10/	—	0 9 9	249,250	Queensind	70-71, Bishopsgate st
Kalgurli.....	1¾ 1⅜	1¾ 1⅝	1 0	—	1 0 0	24,0 0	W. Austral	20, Threadneedle-st
Kapunga..... *G*	14/ 15/	14/ 15/	1 0	rts May 24 '95	0 19 6	249,750	N Zealand	9, New Broad-street
Kathleen	3/ 3/6	3/6 4/	2/6	—	0 2 6	600,000	Ha'raki, NZ	Dashwood House
" Crown...	2/3 2/9	2/3 2/9	2/6	—	0 2 6	164,228	"	"
Kintore .....*G*	⅜ ½ dis	⅜ ½ dis	1 0	—	0 15 0	44,101	W. Austral	13, Abchurch lane.
Komata Queen.....	3/ 3/6	3/3 3/9	2/6	—	0 2 6	600,000	Ha'raki, NZ	Dashwood House,
" Reefs	10/ 11/	10/6 11/	5/-	—	0 5 0	600,000	"	"
Kurnool Caledo'an	½ dis ½ pm	½ dis ½ pm	1 0	—	1 0 0	150,000	"	20, G. Winchester St
Kurnalpi.....*G*	8/ 8/	7/6 8/6	1 0	—	—	—	Coolgardie	Throgmorton House
Lady Loch.....	1⅞ 2	2 1/16 2 3/16	1 0	—	1 0 0	70,000	"	34-36, Gresham-st,
" Shenton	1⅞ 2	1 15/16 2 1/16	1 0	—	1 0 0	—	"	18, St. Swithin's ln
Limerick	1¾ 1⅞	1 1⅛	1 0	—	1 0 0	52,637	Coolgardie	Leadenhall Buildgs.
Ln. & Con. Invest.	par ⅛ pm	1/16 ⅛ pm	1 0	—	0 5 0	500,000	W. Austral	79, Queen Street.
Lon. & Globe Fin.	47/16 49/16	47/16 49/16	1 0	rts Mar. 27 '96	1 0 0	150,000	"	15, Austin Friars.
Londonderry ..... *G*	2/6 3/6	2/ 3/	1 0	—	1 0 0	467,000	"	3, Gracechurch-st,
L.& W. Aust. Expl.	1 1/16 1 3/16	1 3/16 1 5/16	1 0	4/-Nov 29 '94	1 0 0	270,100	"	Broad Street Ho.
Lon. W. A. Invest.	1⅞ 2⅛	1⅞ 2⅛	1 0	1/ Aug 13 '95	1 0 0	100,000	"	"
Maitland Cons. *G*	2 1/16 2 3/16	2⅛ 2¼	1 0	—	1 0 0	150,000	Murchison	54 Old Broad Street
Mawson'sBrewrd.*G*	5/16 11/16	9/16 11/16	1 0	—	1 0 0	60,000	"	28 & 29, S. Swithin's ln
Meredies Gold Est.	⅜ ½	9/16 11/16	1 0	—	1 0 0	—	"	Broad Street House
" Gold Reef	⅜ ⅝	⅞ 1	1 0	2/ June 24, '96	1 0 0	175,000	"	22a, Old Broad Street
" (O'Driscoll)	⅜ ½	⅞ 1	1 0	—	1 0 0	—	"	16, Tokenhouse Yard
Mile Day Dawn*G*	11/16 13/16	⅝ ¾	1 0	-/6 Aug 29 '95	0 15 6	300,000	Queensind	15, S. Helen's Place
Mosman .....*G*	2/3 2/9	2/3 2 9	1 0	—	0 19 9	135,000	N.S. Wales	Bishopsgate House
Mount Lyell.....	8 8¼	8¼ 8¾	3 0	rts June 26,'96	3 0 0	300,000	Tasmania	Finsbury House
Mount Margaret...	1⅛ 1¾	1⅛ 1⅜	1 0	—	1 0 0	—	W. Austral	28, St. Swithin's ln.
" Morgan *G*	2 5/16 2 7/16 xd	2 1/16 2 3/16	1 0	-/6 Sep. 16, '96	0 17 6	1,000,000	Queensind	9, Gracechurch-st.
" Rowe	¾ ⅞	13/16 15/16	1 0	—	1 0 0	75,000	Coolgardie	44, Coleman Street
Murchison S. Ch'm	6/ 7/	6/ 7/	1 0	1/- Oct 30 '95	1 0 0	160,000	"	23, College Hill.
Ne'Hauraki Prepn	3/6 4/	3/ 4/	5/	—	0 5 0	320,000	Ha raki, NZ	Dashwood House.
" Queen .....*G*	5/6 6/	6/3 6 9	1 0	-/6 Sep 12 '95	0 13 6	158,915	Queensind	71-72, King Wm. St.
" Z. Jubilee	⅜ ½	8/ 10/	1 0	—	1 0 0	100,000	U'th'm'sNZ	20, Gt. Win. St.
Newman	1¾ 1⅝	1⅜ 1⅝	1 0	—	1 0 0	800,000	Dundas ...	30, S. Swithin's lane
North Boulder.....	1⅝ 1⅞	15/16 17/16	10/-	rts July 15, '96	0 10 0	—	W. Austral	18, Helen's Place
" Coolgardie	/8 1/	/6 1/	5/	—	0 4 0	400,000	Pilbarra ...	226, Winchester Ho,
" Kalgurli	1 1/16 1 3/16	1 1/16 1 3/16	1 0	—	1 0 0	—	—	11, Abchurch lane
Omnium G Masco	⅜ ⅝	⅜ ⅝	1 0	—	1 0 0	80,000	—	Broad-street House
Paddington Cons.	1⅜ 1⅝	1⅝ 1 ⅜	1 0	—	1 0 0	75,000	W. Feather	77, Bishopsgate-st.
Pembola	1 1 1/16	⅞ 1	1 0	—	—	150,000	N. S. Wales	45-46, Broad St. Av'e
Pilbarra G. F.	⅝ ⅞	⅜ ⅞	1 0	2/ May 14,' 96	1 0 0	100,000	Pilb., W. A.	38, Coleman-street.
Princes Pl. Prop.	3/3 3/9	3/3 3/9	5/	—	0 4 6	400,000	Coro. N.Z.	Dashwood House
Ramage Syndicate	4⅝ 4¾	3½ 3⅝	1 0	£2½rts F.13 96	1 0 0	80,000	W. Austral	4, Bishopsgate-st.
Royal Oak	2/ 2/6	2/3 2/9	5/-	—	0 5 0	400,000	Ha'.aki, NZ	Dashwood House.
" Sovereign ...	1⅝ 1⅞	1 1⅛	1 0	—	1 0 0	60,000	Coolgardie	9, Old Jewry, E.C.
Sheriaws	9 8 10/6	9/8 10/6	1 0	—	1 0 0	85,000	—	Broad Street Avenue
ScottishAustralian	3/6 ⅛	⅜ ⅛	1 0	-/3 Aug., '95	1 10 0	200,00	N. S. Wales	Winchester Ho. E.C.
Scotty's Hauraki...	3/3 3/9	3/3 3/9	5/0	—	0 5 0	333,000	Ha'raki, NZ	53, New Broad-street
Southern Star	1/9 2/3	1/9 2/3	2/6	—	0 2 6	600,000	Coro. N.Z.	63-4, New Broad-st.
South Kalgurli ...	1⅝ 1⅞	1¾ 1⅝	1 0	—	1 0 0	60,000	W. Austral	20, Great Win. St.
Stray Hunt & Exel	¾ ⅞	⅛ ⅜	2/6	—	1 10 0	—	Pilb., W A	30, S. Swithin's lane
Sussex	3/6 4/	3/6 4/	2/6	—	0 2 6	400,000	Coro. N. Z	Dashwood House.
Talisman G. Estate	2⅜ 3⅝	3 3¾	1 0	—	1 0 0	125,200	Nelson, NZ	9, S. Mildred's Court
Tararu Creek	9/3 9/9	9/3 9/9	10/	—	0 8 0	160,000	Ha'raki, NZ	Dashwood House,
Thames Hauraki..	1 1⅛	1 1⅛	1 0	—	1 0 0	200,000	"	54, Old Broad Street.
Tokatea of Hauraki	2/3 2/9	2/3 2/9	5/-	—	0 5 0	530,000	"	63, New Broad St.
Town Prop. of W A	1⅛ 1⅜	15/16 1 1/16	1 0	—	1 0 0	250,000	W. Austral	28-9, S. Swithin's-ln
Triumph	2/- 3/-	2/- 3/-	5/	—	6 5 0	400,000	Ha'raki, NZ	Finsbury House.
True Blue	⅛ ⅜	⅛ ⅛	1 0	—	1 0 0	—	"	Dashwood House.
Union Wahi	⅜ ⅝ pm	⅜ ⅝ pm	1 0	—	0 10 0	141,250	Tham's, NZ	11, Abchurch Lane
Victor Walhou	5/- 6/-	5/- 6/-	10/	—	0 18 0	340,000	K'rghk'NZ	63, New Broad St.
Victory (C. T.)...*G*	5/ 6/	5/ 6/	5/	—	0 3 4	40,000	Queensl'nd	34, Gresham-st., E.C

AUSTRALIAN AND NEW ZEALAND MINES—(*Continued*).

Name.	Closing Price, Sept. 2b, 1896	Closing Price, Sept 18, 1896.	Am't. of Share	When last XD and Dividend	Called up Per Share.	Amount of Stock or No. of Shares Issued.	Situation of Mine.	Head Office
Waihi..... *G*	6¾ 6¾xd	6¾ 7xd	1/	2/- Sept 16,'96	1 0 0	180,000	Th'ams NZ	11, Abchurch-ln. E.C
" G. Junction...	1 1/16 1 3/16	1 1/16 1 3/16	1 0	—	1 0 0	110,000	U ThmsNZ	12, Finsbury Circus,
" Silverton	2¼ 2⅜	2¼ 2⅜	1 0	—	1 0 0	60,000	Ob'n'miNZ	23, College Hill
Waitekauri	4⅛ 4¼	4¾ 5	1 0	—	1 0 0	136,000	WKauriNZ	11, Abchurch Lane
" Central	7/8 8/6	7/8 8/6	10/-	—	0 7 6	130,000	"	63, New Broad St.
" Cross	1 3/16 1 5/16	1 3/16 1 5/16	1 0	—	1 0 0	130,000	"	19a, Coleman Street.
" Extended ...	1/16 ⅛	9/ 10/	10/	—	0 10 0	130,000	Ha'raki, NZ	63, New Broad St.
" United	1 3/16 1 5/16pm	1 1/16 1 3/16pm	1 0	—	1 0 0	50, 00	"	Finsbury House.
Waratah..... *G*	12/6 13/6	12/6 13/6	10/	—	0 10 0	100,000	Crydn, N Z	43, Threadneedle st
Water Trust Min.	⅜ ⅝	⅜ ⅞	1 0	—	1 0 0	120,000	W. Austral	Broad Street House
W. of Nations.....	⅝ 1	1 1/16 1 3/16	1 0	—	0 15 0	—	—	77, Bishopsgate-st.
Wentworth . . ..*G*	1 1/16 1 3/16	⅜ ⅝	1 0	1/- Apl 15 '96	1 0 0	500,000	N. S Wales	4-6, Throgmort. Av.
W. A. Develop's.	1 1⅛	1 5/16 1 7/16	1 0	rts May 14 '96	1 0 0	80,000	—	49-53, Moorgate court
W. Aust. G. Conces.	1⅛ 1 5/16xd	1⅛ 1 5/16xd	1 0	2/6 Sept 16'96	1 0 0	255,000	W. Austral	33, Old Broad st., EC.
W. A. Mr. & Fin.	4⅛ 4⅜	4 5/16 4 7/16	1 0	rts Mar. 27 '96	1 0 0	202,500	"	54, "
W.Australian G.F.	7¾ 7⅞	7½ 7¾	1 0	6/- July 30 '96	1 0 0	65,000	Coolgardie	28-29, S. Swithin's-ln
" " Mines Dvl	1⅜ 2	1⅜ 2 pm	1 0	10/ Oct 30, 95	0 15 0	42,000	W. Austral	3, Princes Street
" Aust. Mining	7/- 8/-	7/ 8/	5/	7½d. Mar. 27'96	0 5 0	320,000	"	257, Winchester Ho.
" Aust. Pioneer.	1 13/16 1 15/16pm	1⅞ 2 5/16pm	1 0	10/ June 12 '96	0 15 0	19,993	"	139, Cannon-street,
" " Share Corp.	1 9/16 1 5/16 pm	1½ 1 5/16pm	1 0	—	0 10 0	200,0 0	"	28, St. Swithin's ln
" " Venture.....	1⅞ 2 1/16pm	2 1/16 2 3/16 pm	1 0	15/ Oct. 30 '95	0 15 0	—	"	3, Princes Street.
West Boulder	⅜ ¾	11/16 13/16	—	—	—	—	—	—
White Feather ...	1⅜ 2	1⅞ 2	1 0	—	1 0 0	60,000	Coolgardie	28 & 29, S. Swithin's ln.
Woodstock	2 5/16 2 7/16	2⅜ 2⅝	1 0	—	1 0 0	137,500	Kanghk NZ	6, Drapers Gardens.
Zeehan Montana *S*	par	par	1 0	-/4 Dec. 95	1 0 0	66,000	Tasmania	11, Queen Victoria st
" " ...	—	—	1 0	2½ Dec. 95	0 2 6	12,000	"	"

EUROPEAN MINES.

			£					
Alamillos .....*L*	1⅜ 1 5/16xd	1⅜ 1 5/16xd	2 0	2/- Sept 16 '96	2 0 0	35,000	Spain	8, Queen-street-place
Consett Ore	7⅛ 7⅜	7⅛ 7⅜	1 0	5/- July 94	1 0 0	55,200	Spain	19, Grey-st, N'castle.
Fortuna ... . *L*	¾ 1xd.	⅞ 1 5/16xd	2 0	1/3 Sept 16 '96	2 0 0	25,000	Spain	"
Libiola.....*C*	2⅛ 2⅜	2⅛ 2⅛	5 0	4/- Apr. 29 '96	5 0 0	50,400	Italy	Dashwood Ho., E.C.
Linares .....*L*	4¾ 5⅛xd	4⅛ 5⅛	3 0	/0/ Sept 16 '96	3 0 0	14,996	Spain	6, Queen-street-place.
Mason & Barry...*C*	2⅞ 3⅛	2⅞ 3⅛	5 0	2/ May 23 '94	5 0 0	185,172	Portugal	87, Cannon-street.
Pestarena .....*G*	4/6 5/6	4/6 5/6	3 0	—	3 0 0	67,500	Italy	6-7, Queen-street-pl.
Pontgibaud .....*SL*	— —	— —	20 0	11/6 Dec.	20 0 0	14,000	Coueron...	"
Rio Tinto .....*C*	24 24⅛	23⅛ 23⅜	10 0	12/- May 9, '96	10 0 0	325,000	Spain	30, St. Swithin's-lane
" (1st Mrt. Bds)	104 105	103 105	100 0	4 % July 1, 96	100 0 0	£3800,000	"	"
Ripanji .....*SQ*	— —	— —	1 0	—	0 19 0	95,000	Servia.....	120, Bishopsgt-st, Wnl
Tharsis.....*C Sul*	6⅝ 6⅞	6⅝ 5⅞	2 0	7/- Apr 29 '96	2 0 0	625,000	Spain	Glasgow.
West Prus Pre.pref	— —	— —	10 0	1 % June 30 '96	10 0 0	1,500	Germany	Walbrook Ho., E.C.
" Prussian Pre.	— —	— —	10 0	6 % June 30 '96	10 0 0	5,450	"	"
" Prussian Or.	— —	— —	1 0	4 % Dec. 31, '95	10 0 0	14,050	"	"
Wohlfahrt .....*L*	— —	— —	1 0	5 % Dec. '94	1 0 0	99,634	Prussia ...	17, Victoria-st., S.W.
"	— —	— —	1 0	3 % Dec. '94	0 10 0	9 090		"

NORTH AMERICAN MINES.

Alaska Mexican...*G*	1¾ 2	1⅝ 1⅞	$5	4 4-5d. Feb., 96	$5	173,500	Alaska.....	30, St. Swithin's-ln.
" Treadwell *G*	5⅝ 5¾	5 5¼	$25	1/ June 30. '96	$25	200,000	"	" "
Anaconda .....*C*	6⅜ 6⅝	6 5/16 6 7/16	$25	10 % May 9, '96	$25	1,200,0 0	Montana...	" "
Arizona (Pref.) Cu	55/ 56/	52/6 52/9	4 0	1/6 July 15, '96	4 0 0	158,920	Arizona ...	74, Geo.-st., Edinbor
" 6½ A Deben.	113½	113	100 0	6½ % May 14'96	100 0 0	£135,300	"	"
" 7 % B Deben.	101½	101½	100 0	7 % May. 14 '96	100 0 0	£131,300	"	"
De Lamar.....*GS*	13/- 14/-	14/ 15/	1 0	1/- Feb. 15 '96	1 0 0	400,000	Idaho.....	6, Drapers-gardens,
Dickens Custer *GS*	-/6 1/-	-/6 1/	1 0	—	0 19 9	420,000	"	Winchester Ho. E.C.
Doric.....*G*	6/6 7/6	6/6 7/6	5/	—	0 5 0	125,000	Colorado...	
Gen. M'g. Assoc. ...	6⅜ 6¾	5¾ 6¼	5 10	12/- May 14 '96	5 10 0	27,469	C. Breton	Blomfield House.
Golden Feather *G*	7/16 9/16	5/16 7/16	1 0	—	1 0 0	180,000	California	S. Stephens Cs E.C
" Gate .....*G*	2/6 3/6	2,6 3/6	1 0	—	0 19 6	79,600	"	"
" Leaf.....*G*	-/3 1/3	/9 1/3	1 0	—	1 0 0	300,253	Montana	8, Draper's Gardens,
Hall Mines	1⅝ 1⅞	1⅝ 1⅞	1 0	—	1 0 0	250,000	Brit. Col.	1, Leadenhall St., EC
Harquahala.... *G*	1/ 2/	1/ 2/	1 0	-/6 Nov. 14, '94	1 0 0	300,000	Arizona ..	6, Draper's Gardens.
Holcomb Valley *G*	/6 1/-	/6 1/	5/	—	0 5 0	540,000	California	14, Cornhill. E.C.
Jackson Goldfields	/1⅝ /4⅛	/3 /9	5 0	—	0 5 0	403,635	"	11, Poultry, E.C.
La Plata.....*S*	/3 /9	/3 /8	5/	1/3 Oct. '82	0 4 6	405,000	Colorado	11, Poultry, E.C.
La Yesca .....*GS*	-/9 1/3	/9 1/3	1 0	—	0 19 6	200,000	Mexico ..	20, Bucklersbury, E.C
Montana..... *GS*	4/3 4

SAND ON PIG IRON AND ITS AVOIDANCE.*

By H. D. HIBBARD (Highbridge, New Jersey).

IF any apology or reason is needed for presenting a paper on this subject, it is to be found in the continually increasing demand for sand-free pig iron for the basic open-hearth steel process, and in the numerous plans proposed and tried for reducing labour in the production of pig iron, some of which have the avoidance of silica on the pig as a secondary aim.

The question was urged upon the writer's attention several years ago by the difficulty of obtaining a supply of suitable pig iron for use in the basic open-hearth steel furnace. In the consideration of the matter the apparatus for casting pig iron described in this paper was devised, and it became evident that a great reduction of labour about the blast furnace could be effected by the use of a mechanical casting appliance, and also that sand free pig would be desirable to other lines of consumption.

Labour-saving devices have hitherto covered the whole field of operations involved in the production of steel from ore with the exception of casting and handling pig iron, and this may now be done, and the iron kept free from sand at the same time.

As is well known, sand is, chemically speaking, chiefly silica. Let us consider its behaviour and treatment in the following lines of consumption, taking up the question from the producers' side first:—

(1.) The basic open-hearth process.
(2.) The Bessemer process.
(3.) The puddling process.
(4.) The foundry.
(5.) In general.

1. *The Basic Open-hearth Process.*—In the operation of this process the most troublesome and destructive agent met with is silica in the furnace. It causes trouble by cutting and destroying the bottom, and by preventing, or at least retarding, the removal of phosphorus from the metal when present in considerable quantities. It is introduced in the form of sand sticking to the pigs from the sand bed in which they were cast, and is also formed in the furnace by the oxidation of the combined silicon in the iron. Experience shows, however, that the evil effects of the latter, especially in cutting the bottom, are not nearly as marked as in the case of the sand on the pigs. Most of the combined silicon is oxidised to silica after the charge is melted, when the bottom is not exposed to the action of the slag except along the slag line at the surface of the bath. In the slag itself, where the silica is all collected, it is diluted by the excess of basic material, and its corrosive effect practically neutralised. The sand on the pigs, on the other hand, begins the destruction of the bottom as soon as brought in contact with it at a sufficiently high temperature, which is early in the history of the heat. The motto of the basic open-hearth steel melter should be "Beware of silica." With great relief he would miss the 1 to 3 per cent. of sand commonly found on commercial pig, were it only absent.

If those working this process claim that they can operate successfully with common sand pig, then it may be said that by using clean pig the limit of combined silicon, permissible in the iron, is raised so as to include nearly all grey iron made, as far as that is concerned, and the special manufacture of basic pig will be reduced to the one condition of casting common grey foundry or mill iron in clean iron moulds. This will do away with the trouble from high sulphur in the low silicon pig now especially made for basic open-hearth work, and will also render useless the 1½ per cent. of manganese sometimes put in basic pig with the especial object of the removal of sulphur in the blast furnace. This manganese is practically all wasted in working the process.

To avoid the sand and silicon difficulty by blowing the metal in an acid-lined Bessemer converter, after melting in a cupola, may be effective, but it is expensive and useless. The increased output can be more than met by putting the cost of the Bessemer plant into additional melting furnaces. The operations of the plant would then be simpler, and the different parts more independent of each other.

In the acid open-hearth process a little sand is sometimes a good thing to introduce to satisfy chemically the basic oxide of iron inevitably formed in melting scrap. Still it need not be paid for at pig iron prices.

2. *The Bessemer Process.*—In the Bessemer process, both acid and basic, the sand is removed from the pig when it is melted in the cupola, and for this reason causes no trouble during conversion proper. But in the cupola it calls for increased consumption of limestone, and the slag caused by the two ingredients carries off some 15 per cent. of iron, and must also be melted, causing extra consumption of coke, while the cupola lining suffers from the eroding action of the slag. Further, the slag must be disposed of after it has left the cupola. Each of these items costs money.

3. *The Puddling Process.*—In the puddling or boiling process, which is commonly, if not universally, practised as a basic process, the presence of silica in the furnace is very undesirable. It cuts and wastes the fix, and hinders the elimination of the phosphorus, thus lowering the quality of the iron produced. By using iron free from sand, less ore and fix are consumed per ton of product, and, as a result, fuel and time are cut down and the quality improved.

4. *The Foundry.*—In foundry practice sand-free pig is desirable for the same reasons as in the Bessemer process. To one familiar with them, fractures of iron cast in chills give an accurate idea of their relative hardness, which can by no means be said of sand pig, in which the grain is influenced by the rate of cooling, usually checked as much as possible by a liberal application of sand. Of course, the fracture will apparently show the iron to be very much harder than if cast in sand if the observer is unacquainted with the fractures of irons cast in chills, but a little experience will teach what to expect in the castings from a given fracture of the pig, and the foundryman would soon be better off in this respect than he is now. Remelting puts the iron in a normal condition. The percentage of the chemical elements which enter into its composition, and on which its adaptability to its use depends, are unchanged.

5. *General.*—In general a consumer buys a lot of worse than worthless sand instead of iron. The allowance of 1½ per cent. now made does not nearly cover it, though if made large enough to do so the case would only be half cured. Some blast furnace managers seem to seek the varieties of sand (not to say gravel) which will stick most abundantly to the pig, and the amount they get on sometimes exceeds 3 per cent.† This amount, over 1½ per cent., is sold as iron, and is present to cause trouble and expense to the consumer at every turn.

The cost of getting the sand to the cast house borne by the blast furnace is exceeded by that of handling and disposing of it and its products afterwards borne by the consumer.

Pig iron cast in ordinary stationary chills is only half cured of sand, as the chills always have quite a lot of sand in them before running in the iron. Only dumping moulds or an equivalent will ensure clean pig free from sand. From them everything is dumped out.

In 1895 the United States produced some 9,500,000 tons of pig iron, probably carrying on an average 1 per cent. of sand above the allowance. If only that 1 per cent. was paid for, it means that 95,000 tons of sand were bought and sold at the price of iron, say $12 per ton. This amounts to $1,140,000 which consumers paid for worse than worthless sand, to say nothing of the large amount of money spent in getting rid of it. In fact, the whole expense of the sand on the pigs, say 213,750 tons, is ultimately paid by the consumer.

It is thought that producers of pig iron will find this apparatus for casting pig interesting, because of the saving it strives to effect in plant, and also in the labour of casting and handling pig iron. The pigs are not touched by hand, and the labour of making up the sand pig beds is entirely avoided. One cast house only is required for a whole furnace plant, and consequently the cast house now found at each furnace may be dispensed with.

The great saving comes, however, from doing away with labour. It is estimated that two crews of 10 men or 12 men each can cast, cool, and ship 1000 tons per 24 hours with one turntable. More than this would require additional tables.

The iron is run from the blast furnace into 20 ton ladles, which are hauled to the cast house and cast in succession. The moulds, corresponding to the ordinary pig beds, are mounted in series on pivoted frames. Each of these frames carries two or more series, so that when the moulds are empty they balance each other, and there is no tendency for the frame to turn on the pivots. But when the top mould series is filled the frame is top heavy, and so will, when permitted, turn over and discharge the pigs on the car standing below.

These frames carrying the moulds are mounted radially in a turntable which revolves, and so brings the mould series successively into position for filling. They are filled on one side, and dumped on the other side of the house when the table has made half a revolution. On dumping, a cold series of moulds is brought to the top ready for filling. The pigs are dumped while still red hot, and, striking suitable projections on the car, are for the most part broken from the sow by the fall, which also breaks the sow into pieces; but men must be ready with sledge and bar to supplement such action in case some still remain not broken off.

The sure-to-come great extension of the basic open-hearth process in the near future will give a large market for suitable pig, and furnaces which first equip themselves to supply this demand will have a great advantage over others, and their iron will command a premium. The introduction of sand free pig in other lines will perhaps be less urgent, but still desirable; and the disappearance, in large measure, of sand pig from the market may be expected. By separating the furnace and cast house, parcels of land formerly unsuitable become available for furnace plants, as the furnace and cast house may be at some distance from each other.

The proposed methods of making pig iron free from silica, by casting it in a bed of ore or roll scale, are not feasible. The expense will be greater than now, and the cure only half effected, as silicious material is carried about on the feet of the workmen, blown in from without by the wind, and out of the furnace by the blast—the slag being silicious. Labour in this case will not be lessened at all. Further, oxide of iron sticking to the pig would tend to unfit it for some purposes, notably in the foundry, where it will, by oxidising the silicon in the cupola, make the iron harder. The pig iron output of blast furnaces and yield of the ores may apparently, but not actually, be cut down when the usual daily tons of sand are not weighed up as iron. Producers of pig iron who consume their own product have not the advantage of selling sand for iron. The sand to them is simply an expense, both before and after it is stuck to the pig.

From the foregoing, consumers may be able to estimate for themselves the advantage they would have could they obtain a supply of sand-free pig. At the end of this paper will be found an estimate of the saving to be effected by the use of turntables, which is thought to be well within limits.

The cost of making iron moulds for the turntable is not great with ladles of molten iron constantly at hand. It will only be that of moulding, the broken moulds being available for use as pig iron. With a good mechanical system of casting, less scrap and fins will be made. The small pieces of iron are lost in transit, or buried beneath accumulations of sand in the metal yard. For cooling the metal after being cast, air is, of course, the cheapest agent, but, it being rather slow, water when cheaply furnished is preferable, because of the time it saves. It also reduces the number of cars and track room needed.

Probably the iron from each ladle will be found to be more uniform in composition than is usual in the metal as it flows from the furnace. This, if so, will greatly facilitate sampling, as only one pig need be broken, or sample be taken for analysis. Each ladle of 20 tons of iron would naturally make a carload. At the time it is filled from the furnace, the metal would be fairly homogeneous, and though there would be some stratification on standing, it would be easy to take a sample from each ladle which would represent the carload.

Desulphurisation is favoured by holding the iron molten in ladles if manganese be present, and probably in any case. On the car receiving the pig is a framework cradle for removing the pig when cold, a crane being used to handle it, and transfer its load to shipping cars. By means of suitable tracks, water cooling appliances, cars, cranes, engines, &c., all the pig from a large plant of furnaces may be cast, cooled, and loaded for shipment at one point without a pig being touched by hand.

Following is an estimated cost of the use of sand for casting pig, and of the saving which would result from the use of this apparatus:—

Cost to Producer.

	Dollars.
Making up sand pig beds per ton	0·10
Carrying and loading pig per ton	0·15
Sand per ton, 2½ per cent.	0·02
	0 27

Cost to Consumer. Melting in Cupola.	
Assumed average freight on sand per ton of iron ...	0·03
Unloading and charging	0·01
Limestone to flux	0·03
Coke to melt	0·02
Disposing of 100 lbs. of slag	0·03
Loss of iron in sand and transit	0·01
Loss of iron in slag, 15 per cent. in 100 lbs.	0 08
	0 21
Total	0 48

Deduct.

Moulds	0·07
Labour	0·06
Supplies	0·02
Wear and depreciation	0 03
Total	0·18
Net saving to consumer	0 30

* A Paper read before the Iron and Steel Institute.

† Since writing the above I had heard of a case where the chemist of a great iron-producing firm was commissioned to find a sand which would stick in the largest possible proportion to pig iron. He did it. Another steelworks manager assures me that at the blast furnaces connected with their works they used to get over 4 per cent. of sand on their pig.

REPORTS FROM THE MINES.

BRITISH MINE.

WEARDALE LEAD.—Report on Weardale Company's mines for the week ending September 19:—Groverake. Sinking sump from 60 fathom level crosscut south 1¼ fathoms in plate rider mixed with sparry strings and a little ore.—Crosscut north from Maddison's drift. We are still cutting sparry strings, vein is very much split up. Groverake tribute ore for the week 11⅓ bings.—Boltsburn. Little limestone drift east strong plate and grey beds. Stopes in north flats from Watt's level worth 40, 40, 20, 24, and 18 cwt. per fathom. Stopes in south flats worth 20, 34, 30, 17, 14, 18, 12, and 12 cwt. per fathom. Vein stope worth 16 cwts. per fathom.—Greenlaws: Races drift. Stopes worth 12, 16, 18, and 16 cwts. per fathom. Slatey Hazel drift, E., stope worth 12 cwt. per fathom. Lowes drift forehead shows strong vein, but poor for ore, worth 8 cwt. per fathom. Stopes worth 10, 12, and 12 cwt. per fathom.—Sedling: Driving 64 level east, vein continues poor. No stoping work is being carried on at present in this mine.—Killhope. The sinking of Middlegrove shaft is now down 20 2-6 fathoms, and we have got to the level sole, but it requires some squaring up. Ore raised for the week 46 tons, ore dressed for the week 33 tons, ore and slag smelted for the week 190 tons, producing 50 tons of pig lead.

MISCELLANEOUS.

CARRINGTON.—Mr. Bright, the manager, reports under date August 8, from Charters Towers, that the Caledonia reef shows an average width of 8 inches, in some places it is 15 inches, and should crush about 30 dwts. to the ton. He has let a contract to drive a level 10 feet to the north and 50 feet to the south of the underlie, and if the stone is similar to that passed through in the underlie the mine will be self-supporting in a few months' time. With regard to the Victoria reef, Mr. White, the principal mine surveyor of Charters Towers, reports that a rich shoot 18 inches thick of 1 ounce 10 dwts. stone will be met with by sinking the main underlie shaft to the boundary or driving a line south-east about 50 feet.

COLOMBIAN HYDRAULIC.—Report on run No. 230, dated August 6: After a run of 90 days, during which time we were only able to wash gravel for about 500 hours, we cleaned up a total of $12,058·45, or £2511, at a total cost of £2185, leaving a profit of about £326. Only about one-third of the gold was obtained from our main sluices, the remainder coming from the west end workings, the tributers and the tailings. The chief difficulty we have had to contend with is our ground cut. We had the good fortune to strike a shallow channel on the south rim, and up this we decided to drive our ground cut. Most unexpectedly we found the bottom of this channel was too hard to work, either with monitor or pick, and about half of it had to be blasted out. To add to the trouble, the only gravel found was in three large heaps in this side channel, the Spaniards having worked every bit they could get at. The whole of the ground was covered with Spanish tailings, in some places over 30 feet deep, and it is probable that, had all the gravel we worked been in one bank, we could have washed it in three days instead of three months. The tailings being worked by Mr. Fifield gave a profit for the first time, and promise a larger profit during the next run. The west end gravel continues very good. During the next run the small monitor will be moved over to the north side of this work, to clear a place for a prospecting shaft ahead of the sets. During the next run the machine will arrive at the point in the Paya ridge where work was stopped by Mr. Fitzgibbon in 1894, but the tailings will discharge into the Sucio instead of the Aguas Claras. A much better result may be expected next run.

CURTIN DAVIS PROPRIETARY. — Extract from letter of the mine manager, dated August 8: Mining. The lode continues strong and carrying some good ore in the 420, 510, and 600 feet levels. At the present time the 510 feet level is in a disturbed part of the lode, but this will come all right again. The lode has been remarkably persistent in the 420 feet level, south of the cross, and carries some splendid blocks of fahl ore. Latterly the drive has been in faulted ground, but though the lode has been at times lying on an angle of 45, it has not pinched out or been broken off, though we have had some bits of very hard ground.—Winze. The winze below the 420 feet is going down on a strong body of oxidized ore, with blocks of siderite and copper pyrites carrying fahl ore. A sample of this has assayed 283 ounces silver and 15¼ copper from 2 feet below the level. The winze is going down nearly vertical, and this corresponds with the almost vertical portion of the lode in the 560 feet level.—560 feet level. The country here keeps good with some soft slate near the ore, which is 18 inches wide, and carrying some high-grade fahl ore for about 6 inches wide on the footwall side. Assays this week gave 637 ounces silver and 28½ per cent. copper from clean ore in the face.—630 feet level. The ground here is a little better, and the lode shows some nice veins of ore, with a lot of mineral all through the face at present. Taken all through the mine is improving, and the lode is proving permanent.

EASTER GIFT.—The following report of progress at the mine has been received by mail from the mine manager:—No. 1 shaft. South crosscut driven 14 feet, met with hard diorite country. Started level west on lode driven 6 feet, and securing ground. No. 2 shaft driven 3 feet in south crosscut. Sump shaft 14 feet for fortnight, raised brace 5 feet, making total depth 89 feet.

GOLD FIELDS OF TIERRA DEL FUEGO.—Extract from progress report received from Mr. Hyacinthe Rouquette, the company's manager in Mozambique, under date August 1: I still continue prospecting to the south of our Meyrelles claims. I discovered three reefs and have come across a fourth reef, which has a far better appearance. I am putting down a shaft on this to test it at depth. It is quite possible that this reef may be the source of all the gold we are finding in the Munene valley. If so I shall immediately peg off the reef. Meanwhile I am continuing to sink the shaft on the Meyrelles claims. Until I get down to bedrock I cannot estimate the average yield or decide upon the best method of working these alluvials on a large scale. You will be glad to hear the railway will reach us in three or four months time.

HERBERT GOLD.—Report from the manager, under date of August 17, says:—Main shaft. We are now down 141 feet from the surface. There is no sign of water at present, and I do not expect to strike it until we reach about the 170 feet level. All the shaft has been thoroughly timbered and centred down to 120 feet level, with the ladders complete. At the 60 feet level we have extended the eastern drive to a distance of 30 feet from the shaft, and there is now every appearance of our being close on the footwall of the reef.—West Block. There can be no doubt whatever that water will be got on this block, as it is much lower than the Herbert, and on a large flat, with hills on each side.

LADY MONTEFIORE.—Extract from manager's report for fortnight ending August 15:—I cabled you that we had cut a splendid reef in Lease 393 fully 5 feet thick, running at lowest 2½ ounces per ton, and one of the best defined reefs I have seen in Western Australia. This reef is unquestionably the keystone of the property, and runs right through Leases 3951, 3952, and 2135. We have also cut the reef in Red Flag that we are working in Lease 3951, also carrying 2½ ounces per ton. I have selected a splendid battery site on this lease at a spot convenient to our abundant water supply.—Hawson's. I am concentrating all available labour on Brotherton's Coongurnie reef in this lease, as here will be the main workings for some years. The result of the trial crushings at Custom Mills may be expected at an early date.

MINER'S RIGHT.—Manager's report for the week ending August 10: Work has been continued regularly on this lease, and in No. 3 shaft we have driven 24 feet, cutting some leaders, also started prospecting on the south-east corner of the lease where we have opened a new leader carrying gold, and also a new formation.

MENZIE'S MINING AND EXPLORATION CORPORATION.—Extracts from manager's report August 4:—Lady Shenton east. New main shaft down 10 feet, struck a new reef in eastern corner north west end of shaft; reef runs west north west dipping south south-west at an angle of about 30°. It is four 6 inches thick, 1 foot 6 inches being quartz, and show visible gold in place. It leaves the shaft at the 114 feet level.—Lady Shenton extended. All hands erecting machinery, erecting both mills, laying down double track line from surface to 150 feet level along south underlie shaft. Ore bin finished, engine bedded, erecting extra Blake crusher. Have secured all additional water pipes necessary.—Leonidas. Mine shaft secured and timbered for 156 feet, reef going regular. It is 2 feet 6 inches thick, of which 1 foot 6 inches is laminated ferruginous crystalline quartz carrying pyrites, bulk assay 3 ounces 9 dwts. 20 grains per ton. Fine colours. A little water is coming in at bottom of shaft.—Ishtar. Started crosscut to east at 102 feet level from No. 3 shaft; cut a 4 inch leader. It undoubtedly belongs to the main reef. Crosscutting to west in No. 3 shaft at same level.—Pandora. Struck reef at 112 feet level 6 feet, solid quartz, bulk assay 13 dwts.—Isabel. Continue sinking old underlie shaft to 200 feet. The ground is getting easier.

MENZIES MINING AND EXPLORATION CORPORATION.—Extracts from mining manager's report week ending July 23:—Sinking and driving at Menzies, total for the week 12½ feet 6 inches.—Lease No. 1431, Lady Shenton Extended. Main shaft (152 feet) has been cut down and timbered 5 feet additional, total 50 feet. Poppet legs are in position; brace ready for docking. Preparing for crushing operations. Carpenters framing ore bin. Smith's shop finished. Pipe screwing and cutting machine overhauled and set in places for work. Mill engine overhauled, hoisting engine overhauled. Settling pits in course of construction.—Lease No. 1430, Leonidas. Depth of shaft 149 feet, reef continues good, formation 2 feet 3 inches, carrying 15 inches of reef with gold 2 ounces 5 dwts. 17 grains per ton.—Lease No. 3106, Pandora. Depth of shaft 106 feet on payable stone.—Lease No. 3104, Isabel. Have let contract for continuing shaft from 150 to 200 feet level. Contractor pushing on with work.

NORTH BOULDER EAST BLOCK.—The following advice has been received by mail from the mine manager:—The main shaft was down 15 feet; it is now 43 feet, and is 12 feet by 4 feet, with three compartments, one for water, one for hauling, and one ladder way. This will supply water for the proposed new battery. The shaft close to the Bank of England boundary, and which I propose calling the Hamilton shaft, was down 33 feet, and is now 49 feet, and is 6½ feet by 5 feet. At 60 or 70 feet I shall crosscut east and test the ground in that direction. The shaft near the eastern boundary, which I put down on a prospect of the formation of the ground, and which I propose calling the Haines shaft, is down 40 feet, and we have already cut a formation showing excellent gold prospect in the pan. I will have this assayed when the lode is fully defined. This information ought, I think, to be very satisfactory to the shareholders. I am working full shifts in each shaft, and every month a considerable amount of development work will have taken place with, I believe, important results.

NORTH BOULDER.—The following advice has been received by mail from the mine manager:—I am happy to say that the Duncan lode is nearly vertical at the bottom of winze in the western boundary shaft, and, curiously enough, it takes a turn east in driving north on it, so that it will remain for the present inclination continues.

PESTARENA.—Mid-monthly report, Ends. In the 33 east on No. 2 the lode is at present sterile, averaging 30 centimetres, but a little good ore has been produced since last reporting. The 46 east on Pozzone lode has somewhat diminished in value, but the lode continues wide and well defined. Average width 50 centimetres, and estimated to produce 2 tons 1 ounce 5 dwts. per fathom. The 46 east on No. 1 lode has still further improved, the lode being 80 centimetres wide, 50 centimetres of which are mineralised, and is estimated to produced 5 tons of 1 ounce 5 dwts. ore per fathom.—Crosscuts. The 11 north has passed through a sterile branch 15 centimetres in width, but is again in solid schist. In the 55 south there is nothing new to report. In the 70 north a mass of quartzite has been cut through, which has somewhat retarded progress. The 90 south (Acquavita) is in massive schist, mixed with patches of good quartz.—Stopes. No particular change has occurred in any of these, which continue to yield, both in quantity and quality, as last reported.—Stabioli Mine. The lode in the end north, on Stabioli lode, has been found to have an average with of 1 metre, carrying two well-defined walls. On each of them a little branch of pyrites has been met with, sampling 11 dwts. and 1 dwt. respectively. The crosscut west from Morghen adit is now 11 dwts. and 1 dwt. respectively. The crosscut west from Morghen adit is now in compact schist.—Kint Concession, east end on Oro Secco. The lode is 150 metres wide carrying 50 centimetres of mineralised decomposed quartz on footwall, During past 15 days has been irregularly producing ore assaying 12 dwts. 12 grains. The end east on Depaulis lode has been suspended, and the men put to rise towards Quarazza winze, in which there is a branch of ore producing, by estimation, 3 tons of 1 ounce ore per fathom.—Quarazza winze is estimated to produce 4 tons of 1 ounce ore per fathom.—Machinery. At 9 a.m., on the morning of the 15th inst., the crank shaft of the pumping turbine broke near the crank. This will cause a delay of at least 15 days in pumping operations, until a new one can be obtained. The rest of the machinery continues to work satisfactorily. Pozzone pump has reached the old working to a depth of 29·20 metres.—Pestarena, September 16 (Signed) W. E. Trelease.

SEGOVIA.—The secretary reports that he has received the following intelligence from the superintendent at the mines:—I am glad to say that during the present week I have received the most hopeful report Mr. Cashion has ever sent me (dated July 3), and I hope this favourable change will be the turning point in the history of the mine. It must not be forgotten that the company has experienced a most unusual period of drought, and I cannot help feeling that, on the whole, the poor returns have been caused more by the shortness of water than the poverty of the mine.

The transfer books of the CARATAL MINING COMPANY (LIMITED) will be closed from and including October 1 next.

AUSTRALIAN AND NEW ZEALAND.

BAYLEY'S No. 2 SOUTH.—The following fortnightly report, dated August 19, has been received from the mines manager, Mr. W. M. Vivian:—In the winze at the 100 feet level 1 foot has been sunk, making the total depth 33 feet. The remainder of the time has been occupied in timbering and securing. The width of the reef is still an inch. During the last two days an influx of water has occurred, equal to 120 gallons per 24 hours. Whether this is permanent or not I can hardly tell yet. At the 100 feet level south 6 feet have been driven, making the total distance from the crosscut 72 feet. The reef is 18 inches wide, with traces of gold.

BONNIE DUNDEE.—Mine manager's report for fortnight ending August 8: No. 3 (vertical) shaft sunk 38 feet for fortnight, or 1391 feet from surface. The last 20 feet has been in beautifully clear granite (hornblendic) with quantities of mineral through it. We are at present in formation.—No. 3 shaft underlie on Victory reef, intermediate level. Extended 7 feet, or 106 from winze. The ground is very hard. No. 1 winze has been sunk 16 feet, or 113 feet from Monkey shaft. There are 6 inches of poor stone in the face. In the south stope north of the winze the reef is 15 inches thick of good-looking mineral stone.

BRITISH BROKEN HILL PROPRIETARY.—Mining manager's report for week ending August 12:—Blackwood shaft. The east vein, Far North, and Southern Section stopes, both above and below the 100 feet level, yielded carbonate ores as required for milling purposes. The working faces throughout the various stopes are looking very well. The work of filling in the depleted stopes in various sections of the mine with tailings and mullock is proceeding satisfactorily. During the week we mined 339 tons carbonate ore from this stope for milling purposes. The tributers broke 118½ tons in the stope just above the 100 feet level, and 91½ tons from the stope just below that level.—Howell shaft, 200 feet level. 744 tons were broken from this stope.—Surface. The concentrates shipping platforms are almost finished, and all work connected with the erection of the buddles is being pushed on with all dispatch. I hope to be able to start two buddles next week.—Week's assays. Carbonate ore—lead from 19·5 to 67 per cent, silver from 1·6 to 24·1 ounces per ton.

BRILLIANT BLOCK.—Mine manager's report for fortnight ending August 4:—9 level east. Driven 17 feet, or 80 feet from shaft. Formation has widened out on hanging wall, and carries 1 foot on footwall.—8 level west. Driven 14 feet, or 51 feet from shaft. Ground very hard.—8 level east. Crosscut to hanging wall driven 13 feet through hard ground. In stopes reef 4 feet wide, yielding large quantities of crushing stuff. Formation 12 feet, and it is difficult to keep the quartz clean.—7 level west. Extended 6 feet, or 249 feet from shaft. Reef a few inches thick. In the stopes reef 1 to 3½ feet, 7 to 10 dwts. No. 3 winze 30 feet deep. It has taken a reef down from 1 to 3 feet wide, worth 15 to 18 dwts. per ton.—6 level west. No. 1 winze sunk a total of 61 feet from level. Stopes over level have a reef 1 to 3 feet, worth (say) 10 dwts. per ton.—5 level west. Reef on stope 20 inches, low grade.—4 level east. Flat reef 6 inches to 2 feet, worth (say) 1 ounce per ton.—New 40 stamp mill. Everything working satisfactorily.

CONSOLIDATED GOLD MINES OF WESTERN AUSTRALIA.—The directors have just received the following fortnightly report from the manager of their Toweranna properties.—Yellow Aster. In the main underlay shaft the drive north at 50 feet level has been extended to 30 feet. Shaft No. 3 has been sunk on the underlay 11 feet, the intention being to cut this shaft through to the drive for stoping. This I expect will be accomplished during the next fortnight. The lode in the drive shows a large body of stone, being over 4 feet in thickness in places, and prospects show an average of 1½ ounce per ton.—Golden King South. The drive at 60 feet level (No. 5 shaft) has been extended westerly along the lode. The total distance now driven in this direction is 15 feet. The lode shows 18 inches of quartz of good battery quality.—Golden King. The battery well shaft has been cut down 30 feet and timbered 10 feet. The developments on the properties show a steady improvement, and there is no doubt about there being a large quantity of payable ore.—Coongan Mine. The directors are advised by cable that crushing is being continuously carried on at this mine, and their manager expects that the satisfactory crushings that have come to hand up to the present will be continued.—Star of the North. From reports received rich ore is being raised on this property, and the directors are considering the advisability of following the manager's advice in erecting machinery on this property.—Peewah Group. Those mines have now been proved to water level, and their manager and Mr. Brenton Symons both recommend the erection of pumping machinery, as mines of similar character to these invariably improve below water level. The directors have at present this matter in hand.

CONTINENTAL AND WESTERN AUSTRALIAN TRUST.—Progress report:—Mavi King Lease. The mine manager reports that the stone maintains its quality in both levels driven, as well as in the four crosscuts, the prospects by dish being from 1 ounce to 1 ounce 10 dwts. per ton, also that gold has been struck in the new shaft, which has been sunk 9 feet.—Abbot's (Mount Pascoe). Mine manager's report, No. 1 shaft is down 95 feet. A crosscut has been put in east, and has exposed 2 feet 9 inches of solid stone. This is good payable stone. No. 2 shaft is driven 12 feet in solid stone, the full width of the shaft. This carries payable stone, but does not show the full width of the reef. On the prospecting area there is a well-defined outcrop which carries good payable battery stone. The shaft is down 50 feet, and shows a nice body of stone, averaging 2 feet 9 inches with about 18 inches of formation. The stone is improving as it goes down, and is of a payable quality. Gold can be got out in the outcrops all along the line. The "O'Shea" Leases and "Champion Leases" at Niagara, and the "Nine of Hearts" at Pendinni, are also being energetically developed.—Hampton Town, Lot No. 145. The house built on this property has been let for two years at a good rental.

CRESCENT.—Fortnightly report of Mr. T. G. Davey, superintendent, dated August 14:—Crescent Mine. Crosscut from top of rise at back of drive, north of tunnel E, advanced 21 feet, total 31 feet, communicating to bottom of winze on 9 feet vein below tunnel A. We shall commence to crush stone from this vein during the coming week.—Victory Mine. Extension of tunnel E towards western lode advanced 20 feet, total 407 feet. The influx of water is still heavy, and small veins of quartz are being met with, but as yet there is no sign of our approaching the western lode. Winze on main lode below drive, south of tunnel E, sunk 9 feet, total 32 feet. No development of any consequence has taken place in this winze, and lode formation continues to be poor. The stopes at back of tunnel E are almost exhausted. The underhand stope north of tunnel E is 24 feet in length and 7 feet deep. The lode is smaller and not nearly so auriferous as it was at the level of tunnel E. It is hoped, however, that an improvement will be met with when the lode is opened up from the winze at greater depths.—Chance Mine. Crosscut east of drive, south of Howard's tunnel, extended 20 feet. None of the parallel lodes has yet been reached.—Orlando Mine. Drive south of tunnel F towards main shoot advanced 17 feet, total 115 feet. Lode continues well defined, but is not yet auriferous.

CROESUS NORTH No. 1.—Mine manager's report, dated August 15:—The main shaft has been sunk 8 feet for the fortnight, making total depth 253 feet. I have had some difficulty in procuring mine timber, but it is now overcome and the shaft is timbered securely to within 5 feet of the bottom, 22 feet having been put in this week. The water is still about 1500 gallons per day, and I do not expect an increase until we cut another floor in the rock, which is likely to happen any day. We have hitherto got all the water from the floors. The rock is still hard blue diorite, interspersed with quartz leaders. The crosscut west from main shaft at the 130 feet level has been furthered 10 feet, total length 41 feet. Ground very hard diorite.

DAY DAWN BLOCK AND WYNDHAM.—Mine manager's report for fortnight ending August 8: No. 2 (underlie) shaft, 17 level west. Driven 13 feet, or 63 feet from shaft. Reef 6 feet, 15 dwts. Stopes reef 4 to 5 feet 18 dwts. 17 level east driven a total of 66 feet from the shaft. Reef on footwall 2½ feet, heavily mineralised. On hanging wall 1½ foot, worth 1 ounce per ton. 16 level west driven a total of 123 feet from shaft. Formation 3 to 4 feet. 16 level east driven 15 feet, or 296 feet from shaft. Reef on hanging wall 16 inches. No. 2 winze 91 feet deep. Reef 18 inches, fairly mineralised. No. 3 winze 57 feet deep. Reef has gone into hanging wall. Stopes reef 5 feet, 16 dwts.—15 level west. Day Dawn reef 15 inches, 14 dwts. Talisman reef three leaders 1 foot thick each, worth 32 dwts. 14 level west rise towards No. 3 shaft 43 feet high, with 6 inches of promising quartz in the face. Stopes reef 1 foot, 12 dwts. 14 level east intermediate stopes reef 2½ feet, 1 ounce.—13 level west. Leading stope beginning at the long winze. Reef 15 inches, 14 dwts.—13 level east. Crosscutting the Talisman reef from end of level. 12 level east reef 15 inches in end, 105 feet from the shaft. 10 level west reef 3 feet, 13 dwts. 4 level west crosscut cut ready for winze.—No. 3 shaft. Underlie 1030 feet from straight shaft.

EAST MURCHISON UNITED.—Extracts from mine manager's report for fortnight ending July 25:—Great Eastern Consols, Dunsford's shaft. The crosscut north has holed through to the main lode at 31 feet from the shaft. The cross cut south has been advanced 8 feet, total 23 feet from the shaft.—No. 1 shaft. The crosscut started from the bottom of this shaft has been extended 29 feet since last report. At 18 feet from the shaft a large formation was met with and has been penetrated for a distance of 20 feet, with ore still in the face. This formation is composed of horn blendic schist and quartz veins, the quartz veins varying in width from 3 inches to 2 feet and forming about 50 per cent. of the whole body. The gold of this portion of the formation gives 1 ounce 3 dwts. per ton.—True Blue South, No. 1 shaft Wallace's reef. The drive has been continued on the make of stone which crossed the line of lode, and from the recent developments in this drive, the character of the ore, the accompanying minerals, and the general features of the lode, I am of the opinion that the ore body which we are now following is the dislocated and faulted portion of Wallace's reef. The drive has been advanced 39 feet on the lode, which is a massive and compact body of stone 5 feet in width, showing colours of gold, but too poor for the mill. The drive south from crosscut on the line of lode has been advanced 16 feet, total 61 feet.—Winding and pumping machinery. Pumping engine is now in working position. Tree bob and other pumping connections are not yet to hand.

GOLDEN HORSESHOE.—Fortnightly report, dated August 13:—Main shaft north drive. 8 feet driven during the fortnight, total 8 feet. Average size of reef is 2 feet carrying a 4 feet lode. Average of pannings is 1 ounce per ton. The lode in this drive is more disturbed than where intersected in the crosscut. This, however, is of no great consequence, as such changes are of frequent occurrence in the various formations in this district. We are carrying only 4 feet in width of the formation in this drive, consequently cannot give its full width. Owing to our having had the men employed cutting a chamber, only part time has been worked in the above drive.—Main shaft chamber. This chamber is securely timbered, and of ample dimensions for our requirements.—No. 3 shaft east crosscut. 20 feet driven during fortnight, total 73 feet. The material passed through is a decomposed diorite, and apparently the capping of a hard diorite bar. How soon a change may be met with is not easy to forecast, seeing we have yet to extend this crosscut over 70 feet before reaching our side line (east), and considering the underlay of all formations in the district are westerly, we have concluded to continue the extension of this crosscut during the ensuing fortnight, when the matter of further extending it will receive our consideration.—Machinery. A portion of the missing fittings are now at the mine, and connections will be made, and the plant got in readiness to start as quickly as possible.

GOLD ORE TREATMENT COMPANY OF WESTERN AUSTRALIA.—Report from Mr. Edward Hooper, manager in Western Australia, on the subject of the precipitation of gold from weak bromo-cyanide solutions at the Consolidated Murchison Mines:—Mr. Knutsen writes (under date July 31 last) that the process is an unqualified success.

HARBERTVILLE.—Fortnightly report of Mr. T. G. Davey, superintendent dated August 14:—Tiddledee Mine, Bibby's lode. Drive south of rise, 50 feet above tunnel F, advanced 7 feet, Lode 1 foot wide, but poor. The lode in the various stopes between the 100 feet level from the surface to tunnel F ranges from 8 inches to 10 inches in width, and is valued at from 5 dwts. to 15 dwts. of gold per ton. We are now crushing stone from these stopes.—Saint Bernard Mine. Drive north of Pennsylvannia shaft towards auriferous vein advanced 18 feet, total 79 feet. We should soon reach the auriferous vein referred to.

LADY MAUDE.—The manager, under date August 19, reports as follows:—Surprise main shaft. The crosscut at the 113 feet level has been extended a further distance of 8 feet, making a distance of 43 feet driven. As I expected last week the reef has been reached, and I have cut into it about 1 foot. The hanging wall is well defined, and the stone highly mineralised. I cannot at present say what its width or value is. As soon as the reef is cut through I intend to resume sinking the shaft by contract, as I find it much cheaper and far quicker. I will at the same time keep two shifts driving on the reef northwards.—Maude main shaft. During the past week have sunk a further distance of 6 feet, making a total depth of 131 feet; besides which have timbered 20 feet. I am not yet through the lode matter. There is a decided change for the better in bottom of shaft, and I hope in another 10 or 12 feet to be able to open out my No. 1 level, and prove the width and value of this large body of ore.

LONDON AND WESTERN AUSTRALIAN EXPLORATION.—Mertzy's Lease (Mount Sir Samuel). Cablegram received September 1.—"Mertzy's have opened up a fine body of ore, worth altogether 30 dwts."—Mail report, Hansen's shaft. This shaft is down 21 feet 6 inches in good country. The reef has made to 3 feet 6 inches, and it all both shows and dollies good gold. I estimate this at 2½ ounces.—Find on Block 48, Hampton Plains. Mail report. No. 1 or north shaft is down 57 feet, and a drive is being put in to the south. No. 2 or south shaft is down 50 feet, and drive started to north. These drives will expose the reef for a length of 147 feet, the distance between the shafts. Fine gold has been visible in the stone throughout the whole depth of the shafts, and the reef is gradually widening as depth is attained. Developments are being actively carried on upon the British King lease at Dariot, the Lady Franklin lease at Pendinni, the Louis d'Or leases at 42-Mile, and the Beehive leases at Menzies, all with very encouraging prospects.

MENZIES GOLD ESTATES.—Extracts from mine manager's report dated August 14:—No. 2 shaft on Aurelia lease has been sunk another 8 feet, and a ladder way put from top to bottom. We are down 105 feet, and the lode keeps about the same—2 feet wide—with several ironstone leaders through it, but no quartz to speak of. The lode in 67 feet level north continues about the same in size as when last reported upon. The stone sampled for the last week's breaking assayed 1 ounce 1 dwt. 12 grains per ton. This level has been extended 12 feet, total 72 feet. There are three men working on the Cleone shaft, and two out cutting timber for same. Timbers are being got ready for timbering main shaft on Etrenna lease. The oil engines to run mill have been overhauled and put together, and are ready to put in place as soon as foundations are completed. The cement for this has not yet arrived. The stonebreaker is put together ready for setting, and the different shaftings and bearings are being cleaned up for fixing in their positions.

MOSMAN.—Mine manager's report for fortnight ending August 1: Wyndham shaft, 16 level north. Driven 40 feet for fortnight or a total of 60 feet from shaft. A slide has come in and thrown the reef out of its course and disturbed the formation very much.—16 level south. Driven 11 feet and passed through the slide.—15 level north. Winze is 69 feet deep. There are 10 inches of reef in the bottom of poor quality.—11 level south. Sunk 14 feet or a total of 22 feet. Reef 1 foot thick with mineralised and well-defined between two good walls. It is, however, of poor quality as yet.

MILLS' DAY DAWN UNITED.—Mine manager's report for fortnight ending July 28:—The underlie shaft sunk 13 feet, or 124 feet below No. 11 level plat. No. 11 level driven 10 feet, or a total of 67 feet from shaft.—No. 10 level. Footwall reef stopes carry 2 to 3 feet of good quality stone. No. 8 level hanging wall winze sunk 22 feet, or a total of 74 feet.—No. 5 level. Four men are stoping under this level.

MOUNT CHARLOTTE.—Manager's mail report of August 14 states: Murray's shaft sunk 295 feet. Ground getting more mineralised, and mineral still about 1¼ ounce of gold per ton of arsenical pyrites. No free gold yet visible.—Tweedie's shaft, North drive. We are saving 3 feet wide of stone, average assay 1 ounce 1 dwt. 13 grains. 14 tons raised during the fortnight. Lode striking north and continues to look favourable. East stope, lode 18 inches wide of 15 dwts, 15 grains. Quantity raised, 10 tons. Water keeps about 2000 gallons per 24 hours.

MOUNT ROWE CONSOLIDATED.—The manager, under date August 19, reports as follows: The tanks for receiving the water have now been fixed at the Regina shaft, and we hope to have the condenser in full operation shortly. The drives south at the 160 feet level has been extended 6 feet, making a total of 101 feet. The reef is very solid and carries a fair amount of gold. It is now over 8 feet wide. In the north drive the reef is very much broken. A crosscut has been started during the week branching off from the north drive. This is now in 17 feet. The crosscut at the 230 feet level R chmond shaft has been extended a distance of 6 feet, making a total of 37 feet, with no change in the country.

MOUNT LYELL MINING AND RAILWAY.—Engineer in charge of mine reports for week ending August 7:—No. 1 tunnel north drive. Distance driven for week 3 feet, total 65 feet.—No. 3 tunnel main crosscut south drive. The main crosscut has met the hanging wall at 337 feet. A south drive has been started and driven 10 along same.—No. 4 tunnel south drive. Distance driven for week 6 feet, total 547 feet.—No. 4 tunnel south drive No. 3 crosscut. Distance driven for week 2 feet, total 62 feet.—No. 4 tunnel south drive Nos. 2 and 3 rises stopes. Ore broken during the week.—Surface work No. 1 bench. Stripping overburden has been carried on at this face.—No. 2 bench. Breaking ore and stripping overburden proceeding steadily at this point.—No. 2½ bench. Stripping of overburden has been going on steadily at this point.—No. 3 bench. Work preparatory to the removal of overburden has been started for this week.—Chief metallurgist reports: Smelting plant running well. Furnace stopped for one day to change size of tuyeres, also to clear throat of shaft. The quantity of granulated slag accumulated at foot of dump for the past four weeks is about 2000 cubic yards for the single furnace.—Converter department. First converter vessel received at site. Roof trusses over crane roof in place, erecting sills and posts of engine room, finishing framework of roof over converter ventilator. Weather variable.

NEW OPTIONS.—Extract from letter received from Mr. T. G. Davey, dated August 16: The Monarch shaft is now 60 feet deep on the underlay, at which level we intend to drive north and south on the lode; but prior to doing so, it is necessary on account of the very flat nature of the lode, that the shaft should be strongly timbered and so divided and formed as to permit of its serving as a permanent way. This is now being done. My intention is to lay down a double tramway on the footwall and subsequently to fix a winding engine at the mouth of the shaft.

NEW ZEALAND CROWN.—The assay value of the bullion recovered from August 10 to 31 is £2000 from 580 tons. As already stated, the mill was stopped during the first 10 days of the month in order to connect the 20 additional stamps, since which 20 more stamps have been ordered.

OCTAGON EXPLORERS.—Extract from mine manager's report on Tower Hill leases for week ending August 1:—I am pleased to say that in a trench about 6 chains from the north boundary on the North Block some very good stone has been got, showing both coarse and fine gold in the solid stone. The reef at this point is very large and is about 50 feet across where exposed in the trench, and appears to be gold bearing right through from hanging to foot wall. I will take a bulk sample on Monday right across the reef, and try the result by dollying and panning. Will start next week to sink an underlie shaft where I got the good stone—which, by the way, is well in the centre of the reef—and endeavour to follow the good chute down. About 3 chains further south again another trench has been put across the reef, which is larger at this point, and where exposed is about 61 feet in width, and appears to be gold bearing throughout, from a few colours to perhaps 2 or 3 ounces stone. Will take bulk sample during the week, and let you know the result the first opportunity. The gold is very fine in most cases at this point, but dollies very well indeed in places. About 2 chains from north boundary another trench is being put across the reef, which is also very large at this point, and prospects fairly well. On the centre block a trench has been put across outcrop close to the north boundary. The reef at this point is also very large, and prospects very well for gold.—Extract from mine manager's report for week ending August 8:—Tower Hill north. Have started to sink an underlie shaft where we got the good stone in trench. Have sunk 6 feet. Still raising very good stone. Sinking will be pretty hard. Will start another shaft on the underlay on Monday, where we have got some very good stone, which dollies well, and contains visible gold. This shaft is situated further south.—Tower Hill south. Have started an underlay shaft on this block close to the north boundary, and am raising some very good stone which dollies well and contains visible gold.—Vesper Bell. I am pleased to say we have got very fair stone on this block from a trench close to the north boundary, which dollies fairly well and contains visible gold. I may say, in conclusion, for work done prospects are very encouraging.

QUEEN CROSS REEF.—Manager's report for fortnight ending August 4: The No. 1 drive has been driven 6 feet, total from shaft 137 feet. The reef keeps about 6 inches in thickness of fair quality. The stopes over this drive range from 6 inches to 20 inches of good quality, with 6 feet of formation between the walls. No. 2 drive east has been driven 15 feet, total from shaft 130 feet. The reef averages 20 inches of good quality in the stopes over this drive. The winze in No. 2 west has been sunk 16 feet, total from drive 52 feet. The reef is about 10 inches on the hanging wall, and about 12 inches on the footwall with leaders intermixed through the formation. The stopes over this drive average 20 inches of good quality. The underlie shaft has been sunk 17 feet, total from No. 2 plat 73 feet. The reef is about 18 inches of good quality, showing gold freely with several leaders through the formation. We had a second clean up of 215 tons for 375 ounces 14 dwts. 9 grains of smelted gold. Quantity of stone raised for the fortnight 150 tons. We have had carted to the mill 645 tons, leaving 150 tons in the paddock. The mine is in good working order.

TRUE BLUE (Hannan's).—Mining manager's report to August 12:—Shaft A. Contract has been let for continuing this shaft from 156 to 206 feet in depth, at a price of £7 5s. per foot, and contractors commenced work. I hope before the completion of this contract to have sufficient water in the shaft for our immediate purposes.—X A, 1, No. 1 vein. The south drift has been extended a further distance of 25 feet, total distance driven from crosscut 155 feet. I have turned the drive in a north-easterly direction, and am following well defined wall, but have not yet succeeded in picking up the stone before continuing the drive north on the course of the vein beyond where the break occurred 29 feet. North of the crosscut I shall continue No. 1 level north in shaft C, as per sketch plan, the progress of which will form a better guide for the continuation of the 100 feet level.—No. 3 vein. The north drive has been extended 29 feet for the fortnight, total distance driven north from crosscut 36 feet, width of vein and formation 9 inches. The prospecting winze at the end of the crosscut on the boundary has been sunk 24 feet, total depth below the level 31 feet 6 inches, with no change to report. Shaft B X B 2 has been driven 51 feet for the fortnight, total distance driven east of shaft 179 feet, and the boundary in this direction reached.—Shaft D. The eastern crosscut has been extended 40 feet, total distance driven from shaft 152 feet, and the boundary of the Croesus South United Gold Mining Company reached. Shaft E X E 1 has been extended 23 feet, total length of crosscut 343 feet. The formation passed through 250 feet from the shaft has been driven on north 30 feet from the crosscut, and is carried in the full width of the drive, and consists of 3 feet of schists and small threads of quartz.—Shaft F. Whip pole has been erected, and the surface portion of the shaft cut down. I expect to finish the work of cutting down the shaft this week, and shall then continue the north drive at the 80 feet level, where the stone carries visible gold.

VICTORY (Charters Towers).—Mine manager's report for fortnight ending August 8:—No. 2 shaft. No. 7 level has been driven a further 7 feet, present length of this drive 382 feet. The vein of stone mentioned in my last report is still continuing. It is nearly vertical in the face about 6 inches in width, but poor quality. There is a little water coming in the face, and the country in present face looks more favourable. Have two men working in No. 6 level 130 feet in from shaft putting up a rise over drive. There is a small vein of stone here that was passed through when driving level and a little water coming from it. A short time will prove if there is anything there. In the No. 1a at the top of rise there are two men putting a drive in on hanging wall. This is in 15 feet; there is a little stone there, but nothing payable. The reef in the rise has nearly pinched out, nothing being done this fortnight. At the 320 feet level 70 feet from shaft a winze has been sunk 15 feet. There was a little stone here when it was started, but that has pinched out. Intend driving level again after this week.—No. 3 shaft. The underlie has been sunk a further 30 feet, present depth 339 feet, or 129 feet from No. 2 level. I shall be prepared to open out levels, which will be No. 3 during coming week. The reef in the bottom of shaft will average 10 inches, the quality looks pretty fair. Have started two men stoping in No. 2 east on 12 inch reef, but so far it is poor quality. The reef in the stopes over No. 1 east will average 9 inches, most of it heavy mineral stone. The winze in this drive has been sunk a further 18 feet, present depth 49 feet. There has been no reef here the last few feet. The haulage of quartz from this shaft for the fortnight has been 40 tons, total at surface 60 tons.

VICTORIA AND QUEEN.—Manager's report for fortnight ending August 4:—The winze at the end of No. 3 crosscut has been sunk a further depth of 13 feet, making it a total of 107 feet. There are some nice pieces of mineral coming in the slide. The underhand stopes, No. 4, average about 10 inches of good quality stone. The winze in No. 3 has been sunk a further depth of 6 feet, making the total 70 feet. The reef is about 1 foot, of good quality. The underhand and back stopes, No. 3, average about 1 foot of fair quality stone. The stopes at the back of No. 2 average 1 foot of medium quality reef. During the fortnight we baled the water out of the straight shaft, and cleaned the well hole, and everything is now ready to start driving the bottom crosscut. Crushed during the fortnight 246 tons for a yield of 5 6 ounces 3 dwts. 12 grains smelted gold. We hauled 130 tons for the fortnight, making the total 610 tons from two paddocks for this crushing.

WAIHI CONSOLIDATED.—The directors publish the following progress report upon the properties which are being developed by the company:—Favona. A satisfactory trial of the winding and temporary pumping machinery, already erected, was made about the end of July, and the permanent pumping plant will be shipped next month and erected towards the end of the year, after which the sinking of the main shaft will be greatly facilitated. Mr. McLean, in his report, dated June 22, writes:—The shaft has now attained a depth of 105 feet with what seems to be another distinct body of quartz coming into the shaft from the south east side, and so far as we can judge is running about one point west of north, which is about parallel to the large body of quartz met with in the drive from the prospecting shaft. I am of opinion that at a depth of, say, 300 feet, where the country is more solid, the whole of these series of bodies of quartz will be concentrated or defined into one main lode. Then we may expect to meet with deposits of high grade ore, that is the ruling feature of this district where junctions take place. On July 2 Mr. McLean writes:—In the last 15 feet of sinking, strong ribs of quartz have been met with, intermixed with good solid sandstone, now the whole bottom of the shaft is covered with quartz, which denoted another large body of stone in close proximity. Mr. Gordon, who has been selected for the post of mine manager in place of Mr. McLean, who remains a member of the local committee, writes on August 5:—Mr. McLean went with me over the principal mines in the district and he pointed out to me the line of the different lodes, and I must say that your ground is splendidly situated, in fact I cannot see how it is possible if these ore bodies keep their true course to escape coming together in your property, and firmly believe the Waihi Consolidated Mine has a grand future before it. I must say that I was surprised at the forward state in which I found everything. Indeed, your late manager, Mr. McLean, deserves every praise for the able and workmanlike manner in which the various works have been carried out.—Brilliant. A telegram was received July 21 to the effect that ore was picked up on the surface assaying £4 16s. 7d. per ton, and this news has been confirmed by letter. The mine manager writes that from the lay of the land it cannot have travelled any distance. He has been instructed to at once start a prospecting shaft to try and find the reef. The quartz is reported to be the best quartz found at Waihi.

INDIAN.

BALAGHAT MYSORE.—Report for the fortnight ending August 29: Ogle's shaft. The 410 feet level south from the crosscut east has been driven 20 feet 6 inches, total 65 feet 6 inches. Quartz 6 inches wide, assays 1 dwt. 15 grains of gold per ton. The crosscut east at this level has been extended 18 feet, total distance 91 feet 6 inches. A few stringers of quartz of no assay value have been intersected, and the crosscut has been suspended.—Haine's shaft. The 410 feet level north has been driven 5 feet 6 inches, total distance 226 feet 6 inches. Lode 4 feet wide, assays 2 dwts.—Thomas Richards.

MYSORE.—Mining operations for the fortnight ending August 31:—Rowse's shaft 1460 feet level north. The winze in the bottom of this level has been sunk 14 feet, making a total depth of 45 feet; the lode is 1 foot 6 inches wide, assaying 1 ounce 12 dwts. 16 grains. The lode in the stope in the back of this level is 1 foot 6 inches wide, assaying 2 ounces.—1460 feet level north of sump winze. There are three stopes in the back of this level, the average width of the lode being 2 feet 2 inches, giving an average assay of 1 ounce 10 dwts. 14 grains.—1260 feet level north. There are three stopes in the back of this level, the average width of the lode being 1 foot 10 inches, giving an average assay of 1 ounce 8 dwts. 13 grains.—1260 feet level north of sump winze north of crosscut. This end has been driven 18 feet, making a total distance driven of 337 feet. The lode is 4 feet wide, assaying 3 ounces. The rise in the back of this level has been put up 14 feet, making a total height of 103 feet. The lode is 4 feet wide, assaying 2 ounces 5 dwts.—1260 feet level south of crosscut west. This level has been driven 11 feet, making a total distance driven of 33 feet. The lode is 1 foot wide, assaying 11 dwts. 17 grains. There are three stopes in the back of this level, the average width of the lode being 1 foot 6 inches, giving an average assay of 1 ounce 6 dwts. 2 grains.—1160 feet level north of Rowse's north of crosscut. This end has been driven 19 feet, making a total distance driven of 345 feet. The lode is 5 feet wide, assaying 1 ounce 18 dwts. 6 grains. The rise (No. 3) in the back of this level has been put up 17 feet, making a total height of 57 feet. The lode is 4 feet wide, assaying 2 ounces 10 dwts. There are two stopes in the back of this level, the average width of the lode being 7 feet, giving an average assay of 2 ounces 3 dwts. 6 grains.—1160 feet level south. There are six stopes in level, the average width of the lode being 1 foot 6 inches, giving an average assay of 10 dwts. 5 grains.—North of the crosscut east. The lode in the stope in the back of this level is 1 foot wide, assaying 3 ounces.—1060 feet level north crosscut east. This has been driven 16 feet, making a total distance driven of 142 feet 6 inches.—620 feet level south. There are two stopes in the back of this level, the average width of the lode being 2 feet, giving an average assay of 13 dwts. 1 grain.—Crocker's shaft. The crosscut west to the 116 from the bottom of this shaft has been driven 9 feet, making a total distance driven of 25 feet.—690 feet level north crosscut east. This has been driven 15 feet, making a total distance driven of 142 feet 6 inches. There are two stopes in the back of this level, the average width of the lode being 3 feet, giving an average assay of 2 ounces 7 dwts. 12 grains.—890 feet level south. There are five stopes in the back of this level, the average width of the lode being 4 feet, giving an average assay of 1 ounce 2 dwts. 19 grains.—780 feet level south. There are 10 stopes in the back of this level, the average width of the lode being 3 feet 1 inch, giving an average assay of 16 dwts. 8 grains.—670 feet level south. The lode in the stope in the back of this level is 1 foot wide, assaying 6 dwts. 12 grains.—Gilbert's shaft, 900 feet level north. This level has been driven 17 feet 6 inches, making a total distance driven of 77 feet. The lode is 2 feet 6 inches wide, mixed, assaying 4 dwts. 13 grains. The crosscut west from the shaft at the 900 has been driven 10 feet, making a total distance driven of 85 feet.—850 feet level north crosscut east. This has been driven 15 feet 6 inches, making a total distance driven of 115 feet 6 inches.—650 feet level south. This level has been driven 17 feet, making a total distance driven of 231 feet. The lode is 8 inches wide, mixed, assaying 6 dwts. 12 grains.—520 feet level north. There are four stopes in the bottom of this level, the average width of the lode being 2 feet 4 inches, giving an average assay of 6 dwts. 2 grains.—430 feet level north. The lode in the stope in the back of this level is 1 foot wide, assaying 13 dwts. 1 grain.—290 feet level north. There are two stopes in the bottom of this level, the average width of the lode being 1 foot 3 inches, giving an average assay of 1 ounce 1 dwt. 6 grains.—180 feet level south. The lode in the stope in the bottom of this level is 1 foot 6 inches wide, assaying 18 dwts. 6 grains.—Pennant's shaft. 750 feet level north of crosscut west. This level has been driven 17 feet 6 inches, making a total distance driven of 251 feet 6 inches. The lode is 1 foot wide, assaying 3 dwts. 6 grains.—750 feet level south of the crosscut west. This level has been driven 17 feet 6 inches, making a total distance driven of 52 feet. The lode is 10 inches wide, assaying 3 dwts. 6 grains.—520 feet level north. The lode in the stope in the back of this level is 1 foot 6 inches wide, assaying 19 dwts. 14 grains.—360 feet level north, south of crosscut. There are two stopes in the bottom of this level, the average width of lode being 1 foot 9 inches, giving an average assay of 11 dwts. 17 grains.—Schaw's shaft. 340 feet level north. There are two stopes in this level, the average width of the lode being 1 foot 6 inches, giving an average assay of 5 dwts. 5 grains.—McTaggart's shaft. The sinking has been resumed. Sunk 2 feet, making a total depth of 11 feet 9 inches below the 730.—730 feet level north. This level has been driven 15 feet, making a total distance driven of 54 feet 6 inches. The lode is 9 inches wide, assaying 2 ounces.—730 feet level south. This has been started and driven 2 feet. The lode is 2 feet wide, assaying 6 dwts. per ton.—650 feet level north of the crosscut west. This level has been driven 2 feet 9 inches, making a total distance driven of 47 feet 7 inches.—650 feet level south of the crosscut west. The lode in the stope in the back of this level is 1 foot wide, assaying 2 ounces 10 dwts.—550 feet level north. This level has

been driven 2 feet, making a total distance driven of 420 feet. The lode in the stope in the back of this level is 1 foot wide, assaying 19 dwts.—550 feet level south of crosscut west. The lode in the stope in the bottom of this level is 1 foot wide, assaying 9 dwts. 18 grains.—450 feet level north. There are three stopes in the bottom of this level, the average width of the lode being 1 foot 2 inches, giving an average assay of 19 dwts. 4 grains.—430 feet level south. The lode in the stope in the back of this level is 1 foot 6 inches wide, assaying 3 dwts. 6 grains.—Prospect shaft No. 2. This shaft has been sunk 4 feet, making a total depth of 147 feet 3 inches.—Ribbiesdale shaft, 1620 feet level north. This level has been driven 16 feet, making a total distance driven of 87 feet.—1520 feet level north. This level has been driven 17 feet, making a total distance driven of 347 feet. The lode is 8 feet wide, assaying 6 dwts. 12 grains.—Crosscut west to Ribbiesdale's shaft from the 1360 south of sump winze. This has been driven 11 feet, making a total distance driven of 16 feet, and holed to Ribbiedale's shaft, the machine will now be put to strip out side for a landing stage.—1060 feet level north of the crosscut west. This end has been driven 14 feet, making a total distance of 50 feet, there are a few small stringers in the end.—Williams' shaft. Crosscut east from the 173, south of the crosscut. This end has been driven 5 feet, making a total distance driven of 25 feet. The lode is 6 inches wide, assaying 2 dwts.—Health. Good.—R. Hancock.

MYSORE WEST AND MYSORE WYNAAD CONSOLIDATED.—Monthly report for August:—Tank Mine. South shaft is down 539 feet 6 inches, progress 12 feet. 507 level No. 1 drive on west lode is in 190 feet 6 inches, progress 24 feet. The end has got a little softer, and the lode, which is well defined, has opened out to about 2 feet of quartz worth 4 dwts. per ton. 507 No. 2 level south on branch has been carried to a distance of 27 feet, progress 22 feet. The lode is 2 feet wide, with stringers of quartz worth 4 dwts. 5 7 No. 3 level north on east lode has been driven 170 feet 9 inches, progress 25 feet. The end is all in quartz, but it is very hard, worth 4 dwts. per ton. 507 north-east level No. 1 winze has been sunk to a depth of 29 feet, progress 29 feet. The quartz is 2 feet 6 inches wide, is fairly soft, and is worth 1 ounce per ton. 507 south No. 1 stope is 5 feet wide, worth 10 dwts. per ton. 507 south No. 2 stope is 6 feet 6 inches wide, worth 6 dwts. 507 north-east lode Nos. 1 and 2 stopes have been started from the rise holed to the 450 north level during the month. The quartz is 6 feet wide, worth 4 dwts. per ton. 450 north No. 1 stope is 6 feet wide, worth 8 dwts. 450 north No. 2 stope is 2 feet 6 inches wide, worth 4 dwts. per ton. 450 south No. 2 stope is 9 feet wide, worth 8 dwts. per ton. 450 south bottom stope is 5 feet wide, worth 6 dwts. per ton. Walker's shaft is down 114 feet, progress 14 feet. Owing to the breaking of the donkey pumps sinking was stopped for a week.

MYSORE REEFS (Kangundy).—Fortnightly report of Captain M. Scantlebury, mine agent, dated September 1: Underlie shaft. This shaft has been sunk 7 feet 6 inches, now 46 feet 6 inches below the 550 feet level. The lode shows a good hanging wall, with patches of quartz in the country rock underneath it. 550 feet level north has been advanced 13 feet 3 inches, now 85 feet 3 inches from shaft. The quartz is 12 inches wide, assaying 1 ounce 6 dwts. of gold per ton. We expect the quartz to widen as the end advances. A rise behind this end will be commenced in a day or two to communicate with the winze below the intermediate level. Winze below intermediate level has been sunk 4 feet 3 inches, now 38 feet 3 inches below the level. The quartz is 12 inches wide, assaying 1 ounce 2 dwts. of gold to the ton.—Stope in bottom intermediate level north of winze. The quartz is 1 foot 3 inches wide, assaying 13 dwts. of gold to the ton. — Stope in back of this level. The quartz is 1 foot 9 inches wide, assaying 6 dwts. 18 grains of gold to the ton.—Stope below the 425 feet level south of winze. The quartz is 1 foot 3 inches wide, assaying 19 dwts. of gold to the ton. Vertical shaft has been sunk 2 feet, now 18 feet below the 425 feet level from underlie shaft. This is suspended for the time, and the men put to follow the quartz in the back and bottom of the 425 feet level just north of the shaft. 425 feet level north has been extended 13 feet 8 inches, now 62 feet 4 inches from shaft. The lode is 1 foot 6 inches wide, composed of quartz, arsenical pyrites, and hornblendic schist, assaying 10 dwts. of gold to the ton.—Stope in back of this level. The quartz is 1 foot 3 inches wide, assaying 1 ounce 15 dwts. —Stope in bottom of level. The quartz is 12 inches wide, assaying 13 dwts. of gold to the ton. 360 feet level south of crosscut has been advanced 5 feet, now 82 feet 8 inches from crosscut. This is suspended, and the men put to crosscut west at the 425 feet level, underlie shaft.—Health. I am pleased to say the health of the camp is fairly good.

NINE REEFS.—Mine report for fortnight ending August 31: Oriental lode. The 400 feet level north of main shaft. This has been extended 9 feet, total distance from shaft 37 feet. The lode is 5 feet wide, composed of quartz and arsenical pyrites, assaying 3 dwts. 20 grains of gold per ton. In the footwall side of this level we have sunk a water tank 6 feet to serve as a cistern for pump.—The 400 feet level south of main shaft. This has been extended 24 feet, total distance from shaft 50 feet 6 inches. The lode is 5 feet wide, composed of quartz and arsenical pyrites, assaying 3 dwts. 9 grains of gold per ton.—The 310 feet level north of main shaft. This has been extended 25 feet, total distance from shaft 262 feet. The lode is from 5 to 6 feet wide, composed of quartz and arsenical pyrites, assaying 5 dwts. 7 grains of gold per ton.—The 310 feet level south of Baynard's shaft. The crosscut west of this level has been extended 14 feet 8 inches, total distance 37 feet. No lode found. We have driven crosscut east 8 feet, and have intersected a lode 6 inches wide, from which no assay has been made.—The 250 feet level north of Morrison's shaft. This has been driven 22 feet 6 inches, total distance from shaft 22 feet 6 inches. The lode is 5 to 6 feet wide, composed of quartz, arsenical pyrites, intermixed with black rock, assaying 4 dwts. 14 grains of gold per ton.—New water shaft. Crosscut has been driven 5 feet 6 inches, total distance 22 feet.—Health. The health of the camp continues good.

SUNDYDROOG.—Report for the fortnight ending August 29:—Kennedy's shaft. The sinking of this shaft has been delayed on account of hindrances occasioned by putting in the permanent pitwork from the 530 feet level to the 700 level, which will be concluded within the next few days. The 700 north has been driven 20 feet, total distance 184 feet 6 inches. Lode 9 inches wide, assays 2 dwts. 12 grains of gold per ton. Sinking the 700 winze has been resumed, 2 feet having been sunk, total depth 4 feet below the 700 feet level. Lode 5 feet wide (quartz), assays 2 ounces. The 700 crosscut west has been extended 3 feet 6 inches, total distance 125 feet from the shaft. No change. The 700 south has been driven 10 feet, total distance 144 feet. Lode 6 inches wide, assays 1 dwt. 6 grains. The 600 north crosscut east (at 182 feet from the shaft) has been extended 14 feet, total distance 29 feet. At 24 feet a lode 1 foot wide of no assay value was passed through. The 600 south has been driven 9 feet, total distance 425 feet 6 inches—lode of no assay value. This drivage has been suspended for the present and a rise has been commenced in the back of the level, at 300 feet from the shaft. This has been put up 7 feet. Lode 1 foot 6 inches wide, assays 3 dwts. 18 grains. In two stopes in the back of the 520 north the lode averages 3 feet in width and 1 ounce 15 dwts. in assay value. The lode in two stopes in the back of the 520 south averages 3 feet in width and 2 ounces 15 dwts. in assay value. The 440 south crosscut west has been extended 18 feet, total distance 289 feet. At 268 feet a stringer of quartz of no assay value was intersected. In two stopes in the back of the 370 north the lode averages 5 feet in width, and 1 ounce 5 dwts. in assay value. The lode in two stopes in the back of the 370 south averages 3 feet 6 inches in width, and 6 dwts. 21 grain, in assay value. The 300 north has been driven 1 foot 6 inches, total distance 493 feet, suspended. The rise in the back of this level has been put up 2 feet total height 92 feet. A communication will be effected with this rise by a crosscut from the intermediate drivage from No. 1 rise. A new rise, No. 3, commenced at 330 feet from the shaft has been put up 10 feet 6 inches. Lode 8 inches wide, assays 5 dwts. In two stopes in the back of the 300 south the lode averages 3 feet in width and 10 dwts. in assay value. The 230 south has been driven 17 feet 6 inches, total distance 454 feet 6 inches. Lode 6 inches wide, assays a trace of gold. The crosscut east at this level has been extended 4 feet 6 inches, total distance 27 feet 6 inches. No change. Suspended. North shaft has been sunk 8 feet 6 inches, total depth 101 feet below the 600 feet level. Lode 2 feet 6 inches wide, assays 1 ounce 2 dwts. 12 grains of gold per ton. The new vertical shaft has been sunk 11 feet, total depth 188 feet 6 inches below surface.—Main shaft. The sinking of this shaft has been prevented during the past few weeks by a great increase in the water from the bottom levels, which has proved more than the temporary pitwork can control. Preparations are now being made to fix an 8 inch plunger at the 1150 feet level, after which sinking will be resumed. The 1160 north has been driven 22 feet 6 inches, total distance 370 feet 6 inches from the shaft. Lode 5 feet 6 inches wide, assays 1 ounce 6 dwts. 6 grains. The rise in the back of this level has been put up 16 feet 6 inches, total height 72 feet 6 inches, and has communicated with the 1080 feet level north. A winze commenced in the bottom of this level (the 1160 north) at 140 feet from the shaft has been sunk 6 feet. Lode 2 feet wide, assays 2 ounces 5 dwts. The lode in the stope in the back of the 1080 north is 3 feet 6 inches wide, and assays 3 ounces. The 1080 north rise has been put up 18 feet 6 inches, total height 56 feet 6 inches. Lode 2 feet 6 inches wide, assays 10 dwts. A rise commenced at 70 feet from the shaft has been put up 23 feet. Lode 1 foot 6 inches wide, assays 1 ounce 5 dwts. In the stope in the back of the 1000 north the lode is 5 feet wide, and assays 13 dwts. 18 grains. The lode in the stope in the back of the 920 north is 6 feet wide, and assays 1 ounce 3 dwts. 18 grains, and in the 920 south bottom stope it is 4 feet wide, assaying 5 dwts. The 680 north crosscut west has been extended 16 feet 6 inches, total distance 59 feet 6 inches. No change. The 680 north (on Kennedy's lode) has been driven 10 feet, total distance 26 feet from the crosscut. Lode assays a trace of gold. The 520 south from crosscut east has been driven 24 feet. Lode of no assay value. The 370 north has been driven 30 feet, total distance 268 feet 6 inches. Lode of no assay value.—Taylor's shaft. The 1240 north has been driven 7 feet 6 inches, total distance 335 feet. Lode of no assay value. The lode in the stope in the back of the 1160 north is 2 feet 6 inches wide, and assays 2 ounces. In the stope in the back of the 1080 north the lode is 3 feet wide, and assays 1 ounce of gold per ton. In two stopes in the back of the 1000 north the lode averages 2 feet in width and 5 dwts. in assay value. The 920 south (on branch) has been driven 5 feet 8 inches, total distance 9 feet; quarts 9 inches wide assays 3 dwts. 18 grains. In two stopes in the back of the 920 north the lode averages 3 feet in width and 7 dwts. 12 grains in assay value. In two stopes in the back of the 840 north the lode averages 3 feet 9 inches in width and 4 dwts. 9 grains in assay value. The lode in the stope in the back of the 680 north is 2 feet 6 inches wide and assays 8 dwts. 18 grains. In two stopes in the back of the 600 north the lode averages 3 feet 3 inches in width and 5 dwts. in assay value. The lode in the stope in the back of the 450 north is 2 feet 6 inches wide and assays 8 dwts., and in the 230 south back stope it is 2 feet 3 inches wide, assaying 1 ounce 7 dwts. 12 grains. No. 1 trial shaft has been sunk 10 feet, total depth 108 feet below surface. Lode 3 feet wide, assays 1 dwt. 6 grains. No. 2 trial shaft has been sunk 3 feet 9 inches, total depth 80 feet 6 inches below surface. Lode is of no assay value.—Old mill samples, Pulp 16 dwts. 6 grains, tailings 3 dwts. 18 grains.—New mill samples, Pulp 1 ounce 2 dwts. 12 grains, tailings 4 dwts. 9 grains.—Thomas Richards.

YERRAKONDA.—Mine report for fortnight ending September 1: South shaft. The 300 feet level south has been extended 23 feet, now 68 feet from shaft. The lode is 4 feet wide, composed of quartz, assaying 3 dwts. 6 grains of gold to the ton. 350 feet level north has been advanced 7 feet, now 49 feet from the shaft. The lode is disordered by coming in contact with an east and west dyke. We have suspended this and commenced a crosscut west, which is extended 14 feet from level. 255 feet level south has been extended 15 feet, making a distance of 221 feet 3 inches from shaft. The lode is 3 feet wide, composed of quartz, assaying 6 dwts. of gold to the ton. Health, I am pleased to say, is good.

AFRICAN.

AFRIKANDER.—The mine manager reports on August 8 as follows:—Development on the Afrikander reef. Driving on the 3rd and 4th levels east and west has been resumed. The reef in the east drive is looking very promising, this week's assays being 14 dwts. 6 grains across 4 feet. The assay from the 4th level west drive is 9 dwts. 15 grains across 4 feet. In the 3rd level west a small dropper has been encountered, in consequence of which no assay has been made.—Green's reef. Driving west from B shaft is being continued. This week's assay is 7 dwts. 18 grains across 3 feet.—Worcester Hope reef. During the week the east drive from No. 3b has been connected with the drive from No. 3a. Driving east from No. 3a is being continued. This week's assays from No. 3b east drive is 14 dwts. 12 grains, and from the west drive 22 dwts. 9 grains across 3 feet.

EAST NIGEL.—Report for the fortnight ending August 29: No. 3 incline has been sunk a further depth of 13 feet during the last two weeks, making a total depth of 235 feet. At the 200 feet level, drives were started north and south along the reef, and they are now in about 6 feet from the shaft on each side. The air drive has been extended a further 16 feet, making a total length of 67 feet. We are not through the break yet, and are still in the hanging wall rock which is very hard, but we shall get back to the shale shortly. We have not broken the reef lately, but will sample it again this week—it appears to be holding its own well. The battery is rapidly nearing completion.

GROOTFONTEIN EXPLORATION.—The manager (C. F. Alston) writes under date August 22 as follows:—That the bore is proceeding through hard grey rock, and the progress for the week ending August 22 is 6 feet 11 inches, the stone still being extremely hard.

LYDENBURG (Transvaal).—The manager (J. A. Woodburn) writes under date August 27 as follows:—Prospecting on the Sandstone reefs and dolomite seams continues to be pushed on. The prospecting shaft being sunk west of the Ohrigstadt has reached a depth of about 60 feet, but has not yet come to a solid formation.

VAN RYN GOLD MINES ESTATE.—Report on operations for month ending July 31: The mines. General manager reports: Mine No. 4. New main shaft sinking squaring down 34 feet July. Driving fourth level 100½ feet May, 87 feet June, 66 feet July. Driving second level 16 feet May, 133 feet June, 178½ feet July. Driving first level leader 105 feet May, 131 feet June, Driving fifth level leader 6 feet June, 26 feet July. Fourth level main shaft winze 13 feet May, 20 feet June, 18 feet July. Second level intermediate 28 feet May. Fourth level first winze west 13½ feet May, 27½ feet June, 22 feet July. Fourth level first winze east 27 feet May, 25½ feet June, 17 feet July. Fourth level crosscut in winze 8 feet July. Fourth level rises on leader west 63½ feet May. Fourth level intermediate 44 feet July. Fourth level third rise west main reef 2 feet May, 65½ feet June, 32½ feet July. Fourth level second rise east 57 feet July. First level crosscut to rise on leader 7½ feet June. Fifth level stations and west 35 feet May. Second level third rise east 48 feet May, 52 feet June. Second level intermediate 27 feet July. Second level boxhole 21½ feet May, 20 feet July. Second level rises to leader 44 feet May. Second level rise on leader between 1 and 4 30 feet May, 75 feet June. Second level crosscut to west 55 feet May. Second level second rise east 4 feet June, 74½ feet July. First level rise on leader east 42 feet May, 79 feet June, 57½ feet July. First level boxhole and intermediate 43½ feet May. First level intermediate on leader 5 feet June, 64½ feet July. First level rise on leader west 11 feet June, 34 feet July. First level crosscuts to leader 29½ feet July. First level leader west 14½ feet July. Prospecting shaft No. 1 25 feet July. Prospecting shaft No. 2 20 feet July. Total for months 697½ feet May, 734 feet June, 919¾ feet July.—Mine No. 5. Driving first level east 91½ feet May, 126 feet July. Driving second level east 93 feet May, 114½ feet June, 108½ feet July. Driving third level east and west 30 feet May, 17½ feet July. First level intermediate east 27 feet May, 129 feet June. Second level third rise east 57½ feet May, 33½ feet June. Second level first winze east 10½ feet July. First level fifth rise east 11 feet May. Second level first winze west 9 feet July. Prospecting shaft 22 feet July. Total for months 310 feet May, 277 feet June, 293½ feet July.—Ore developed, Mine No. 4, First level 1100 tons June, 325 tons July. Second level 300 tons June, 2450 tons July. Fourth level 2300 tons June, 1925 tons July. Fifth level 1050 tons July.—Mine No. 5. Second level 2100 tons June, 2184 July. Third level 355 tons July. Total for months 5800 tons June, 8299 July.—Ore in sight, Mine No. 4. First level 32,759 tons June, 33,294 tons July. Second level 12,765 tons June, 15,215 tons July. Third level 17,239 tons June, 16,152 tons July. Fourth level 36,538 tons June, 37,746 tons July. Fifth level 1050 tons July. Total for months 99,699 tons June, 103,257 tons July.—Mine No. 5. First level 15,963 tons June, 14,662 tons July. Second level 29,306 tons June, 30,853 tons July. Third level 355 tons July. Total for months 45,269 tons June, 45,875 tons July.—Mine No. 4, fifth levels. These have been extended 36½ feet east and 40½ feet west. A machine drill will soon be started there as the main air pipes have just been laid down from fourth level. The reef is wide and good in the eastern drive.—Fourth level. On the east 24 feet have been driven, to the west 41 feet have been driven in fairly good reef.—Second level. The crosscut to the north from the west drive advanced 105 feet in very much disturbed formations. The east drive has been lengthened by 73½ feet, and developed a good body of reef.—Mine No. 5. An orebin of 100 tons capacity has been completed. The drives have been restarted, and have attained a length of 25 and 29½ feet respectively, east and west. The reef to the east is good, but has given out in the western drive.—Second level. 108½ feet have been driven during the month. A good hanging leader has been opened in the drive.—First level. The east has now attained a total length of 2016½ feet, being 126 feet for the month. The formation has been very much broken from the main fault, but is now regular and solid; crosscutting for the reef has therefore been started.—Prospecting. A new prospecting shaft has been sunk on the virgin area, 1500 feet west of the eastern boundary. Several leaders have been met with from 15 feet downwards, one of them assaying 10½ dwts., over 6 inches width. This is supposed to be the main reef leader, sinking is therefore being continued to find the main reef.—Stamp mill. 50 stamps ran days and hours 24 June, 28 July. Ore crushed 4050 tons June, 4300 July. Crushed per stamp per day of 24 hours 3·03 tons June, 3·1 tons July. Gold won (plates and concentrates) 1277·2 ounces June, 1183·8 ounces July. Average yield of gold from plates and concentrates 6·28 dwts. June, 5 dwts. 10 grains July.—Ore at surface. 2020 tons June, 3250 tons July.—Cyanide works. Tonnage treated 3450 June, 4050 July. Yield 358 ounces, 442·75 ounces. Cost per ton 4s. 6d. June, 3s. 8d. July. Actual extraction 63 per cent. June, 68 per cent. July. Assay value of tailings 3·7 dwts. June, 3·7 dwts. July.—New works. The battery engine has been delivered at mine and the erection has been started vigorously. The boiler plant and new hauling engine have been tried to satisfaction. Bridges for dumping waste have been put up at new headgear. The Rand Central Ore Reduction Company has commenced with the erection of the wooden tanks. Work at new compound is progressing steadily. All other work in connection with the new plant is being pushed on rapidly. Native labour is plentiful.—Water supply. There has been no rain during the month. The water in the dams therefore decreased constantly. The reservoir at mine 4 has been connected with a pipe line to the Van Ryn West, and a fair supply has been obtained.

AMERICAN

BIG VALLEY CREEK.—The following is extracted from a report, dated August 19, from the Acting Manager: Owing to great quantities of snow and high water, we were unable to work in Big Valley Creek to advantage until July 27; for the first six days we were employed in building a log house to board the men in. Since that time there has been from 10 to 12 men employed in mining an open cut or tunnel. Up to August 14 we have run 446 feet, 24 feet of which is tunnel; practically the last 300 feet might be called tunnel, as we were far enough below the surface to tunnel, but I found I could make more headway by keeping it an open cut. When 3 feet below the surface, we could get gold by washing the gravel in the shovel; as we advanced with the cut the gold increased, showing a little 'better' every 10 feet. At 300 feet we began to find compact gravel, and the gold coarser. As the tight gravel increases we find more gold and are now washing all the dirt that comes out. We have not cleaned up since we began washing the bottom dirt, but the showing in the dump box proves we are getting gold, and when we get to the channel and in the bottom, we should find good pay. Many of the oldest and most intelligent miners who have looked at the ground pronounce the chances for our claim very good. I have never known so much gold to be found in the surface gravel in Williams or Lightning Creeks. We are now about 200 feet below, where I expect to find the bottom of the channel. We find a number of large boulders in the tunnel which have to be blasted; this retards the work and makes it more expensive, however I fully expect to be clear of these when we get the face of the tunnel in tight gravel, and I have no doubt but we are now deep enough to run clear, of them. Owing to four repeated warnings to economise in every possible way, I delayed the commencement of the work until the men could work to the best advantage, and accomplish the most work for the least expenditure.

CHIAPAS.—Mine report for fortnight ending August 15; Francisco adit driven 20 feet, total 269 feet. No change. Stopped for the present; have moved rock drill back to drive on ore passed through. Assay, gold 2 dwts, silver 2 ounces 13 dwts,, copper 1·32 per cent; Taylor deep adit driven 21 feet total 261 feet. Have made good progress, considering the rock drills did not work six days owing to breakage of the main water pipe. Pine creek drift No. 1 driven 6 feet, total 136 feet. Poor, stopped *pro tem.* Have moved rock drills back to drive on ore passed through. Assay, gold 2 dwts, silver 18 dwts,, copper ·45 per cent. San Antonio prospecting drift driven 7 feet, total 35 feet. Has somewhat improved, Santa Fe hill drift No. 3 driven 4 feet 6 inches, total 227 feet 6 inches. No change. Providencia crosscut east No. 1 driven 10 feet, total 410 feet. No change, Francisco winze sunk 4 feet, total 4 feet. A winze started near the junction of Francisco adit and Francisco adit drift north west. In fair ore.—Extraction, Old Providencia. Extracted 90 tons. Very good ore. Assay, gold 1 ounce, silver 4 ounces 15 dwts., copper 6·53 per cent.—Santa Fe stopes. Sent 45 tons to the mill. Fair ore.—San Juan stopes extracted 77 tons of good milling ore. Santa Fe Hill. Extracted 82 tons of ore, rich in gold, poor in copper.—Francisco adit stope and drifts. Extracted 184 tons. Has improved somewhat in quality. Assay, gold 5 dwts, silver 2 ounces 15 dwts., copper 2·58 per cent. In the mining report for fortnight ending July 21 it was omitted to mention 94 tons of ore taken from the Santa Fe Hill.

JERSEY LILY.—Extracts from the report of the manager: I have been getting along very nicely with the work at the mine the past week; they having been averaging two setts of timber per day for the past few days, and yesterday they had the mine timbered and finished to a point directly under the perpendicular shaft; from here it will be all new work, but as the ground is soft and breaks without powder they will be through before the time they thought they would, in fact, I hope they will be done with this part of the work by the 10th. I have a most beautiful sight in the shaft between the 2nd and 3rd levels. In taking out the old lagging and timbers I cut as pretty a body of ore as one could wish to see. It is about 18 inches wide, and nearly all shipping ore, and will average well in gold, probably 10 ounces, but I did not assay it, as it was useless. I shall attend to all this when we are after ore, and you will hear from me in a very few days.—W. C. Bashford.

MISCELLANEOUS.

ALAMILLOS.—Mine report, dated September 9:—In the 40 fathom level driving east of Santa Agueda shaft the lode is wide and continues regular, valued at 1 ton per fathom. The lode in the 70 east of Sanz winze is large and strong and looks promising, estimated at 1 ton per fathom. The 100 west of Taylor's engine shaft is still being driven on the crosscourse. In the 160 east of the same shaft the lode is large and open. The 100 east of Judd's engine shaft continues to open out well, and the lode is estimated at 4 tons per fathom. The lode in the 85 east of Hermann's winze is compact, and has a very kindly appearance. It is estimated at 1 ton per fathom. Marvel's winze sinking below the 100 fathom level, valued at 4 tons per fathom, has been temporarily suspended, and the men have been put to cut a station in Judd's shaft. The stopes continue to yield well. Surface works are kept in very regularly, and the machinery is in good working order. Estimated raisings for September 200 tons. The tributers' returns amounted to 94¾ tons of ore in the past month.

LINARES LEAD.—Mine report, dated September 9: Pozo Ancha Rico, Warne's crossout. The 100 fathoms level driving east turns out some good stones of ore. In the 200 west the lode has slightly declined in value, and is now estimated at ¼ ton per fathom. The lode in the 170 west is wide and strong, valued at ¼ ton per fathom.—Peill's engine shaft. The 200 west continues to turn out some stones of ore. The lode in the 170 west looked very promising, but has since fallen off to ¾ ton per fathom. In No. 280 winze, sinking below the 173 fathom level, the lode is regular and well defined, valued at ¾ ton per fathom. The stopes continue to yield well. Surface works are kept on very regularly, and the machinery is in good working order. Estimated raisings for September, 200 tons. The tributers returned 93 tons of ore in the past month.—Los Quinientos Mine. Taylor's engine shaft. The 200 east looks more promising, and is turning out some stones of ore. In the 185 east the lode is wide and strong, valued at 1 ton per fathom. The lode in the 165 east is 2 feet wide, and produces some stones of ore. In the 150 east the lode is regular and well defined, but is unproductive at present. Estimated raisings for September 150 tons. The tributers returned 91¼ tons of ore in the past month.

FORTUNA.—Mine report dated September 9:—Canada Incosa Mine. In the 110 fathom level driving west of San Pedro's shaft the lode produces some stones of lead ore. Good progress is being made in the 125 fathom crosscut south of the same shaft. Gil's winze sinking below the 110 fathom level is going down through a regular and compact lode valued at 1 ton per fathom.—Good winze sinking below the 110 fathom level. This new winze is situated west of San Pedro's shaft. The lode is promising and is estimated at ¼ ton per fathom.—Los Salidos Mine, Taylor's engine shaft. In the 212 east the lode continues regular, but has fallen off in value to ¼ ton per fathom. The driving of the 60 crosscut south has been suspended, nothing of value having been met with.—The 80 crosscut north. This new crosscut is being driven with the object of intersecting a lode which has been extensively worked by tributers. In the 92 west of Palgrave's shaft the lode is small and poor. Surface works are kept on with great regularity, and the machinery is in good working order. Ore extracted during the month 200 tons. The tributers' returns amounted in the past month to 61¾ tons of mineral.

CURTIN DAVIS PROPRIETARY.—Mine manager's report for the week ending August 8:—420 feet level. Main level extended 5 feet, total 211 feet. There is a nice vein of ore on the footwall 9 inches wide, carrying a good proportion of fahl ore. We have had rather harder ground, and not so good for working this week. Eastern crosscut driven 5 feet, total 13 feet. Country blue slate. No change of importance. Winze sunk 5 feet below this level. Lode 3 feet 6 inches wide of siderite and oxidised ore, carrying some splendid bunches of yellow copper and fahl ore. The lode here looks really well, and so far is going down nearly vertical. 560 feet level driven 8 feet, total 190 feet. There is 1 foot of ore on the footwall showing yellow copper and fahl ore of good quality.—Winze. Have started to open out a chamber to make room for sinking a winze 110 feet in this drive to connect with the 610 feet level below. 580 feet level driven 5 feet, total 219 feet. There is 18 inches of ore on the hanging wall carrying some high grade yellow copper and fahl ore. There is now a smooth head running nearly north-west across the drive, and behind this the country is highly mineralised, the ground is also a little better for working.—640 feet level. Driven 6 feet, total 182 feet. Lode has been disturbed and irregular since meeting cross veins 10 feet back from face. There is more water coming from the back of this drive than of the others. The ground is a little harder, but the hanging wall is more defined again.—1050 feet level. Have two men working here. They have driven 6 feet, total 41 feet. The country is getting more settled, and we have a good wall along which we are driving. The lode matter is broken quartzite and loose slate with a little iron pyrites.—Assays. 560 feet level fahl ore 537 ounces 16 dwts. 8 grains silver, 26·5 per cent. copper. 420 feet level decomposing copper and iron pyrites, 268 ounces 19 dwts. 11 grains silver per ton, 13·5 per cent. copper. 1050 feet level gossan, 377 ounces 12 dwts. 12 grains silver per ton, copper nil. 640 feet level galena, 23 ounces 14 grains silver per ton, 55·5 per cent. lead.

CHAFFERS.—The following report, dated August 13, has been received from the company's managers, Messrs. F. Bowes Scott and Co., Coolgardie:—No. 1 shaft, south drive. This has been advanced 5 feet, total 90 feet. The lode has pinched out and the drive has been stopped.—No. 1 shaft, winze. This has been sunk a further depth of 9 feet, making a total of 41 feet. The lode here is about 1 foot in width, and samples give a return of equal to 5 dwts. per ton. Size of vein 1 foot. Pannings 5 dwts.—No. 2 shaft. This was started during the fortnight and sunk a further depth of 3 feet, total 103 feet, but as the machinery has arrived in Fremantle, we thought it advisable to delay operations in this shaft until the machinery is erected. The country is very hard diorite.—No. 3 shaft. west crosscut. No change, still in hard diorite.

HANNAN'S LODE.—The following report, dated August 15, has been received from the company's managers, Messrs. O. J. McCulloch and Co., Coolgoorlie:—During the fortnight the crosscut at the 100 feet level in shaft No. 1 has been driven 10 feet, making a total of 27 feet. The country passed through has been hard and tight, with occasionally belts of ironstone. Progress has, therefore, been slow. I expect to meet No. 2 lode running parallel to No. 1 about 50 feet further on. No. 2 shaft has been sunk 5 feet, making a total depth of 95 feet. The shaft has been timbered from the 81 feet level as the ground is damp and flaky. No. 3 shaft has been sunk a further depth of 10 feet, making a total depth of 43 feet. Square sets for the ladderways have been put in at 10 feet intervals. No. 2 lode, which consists of quartz ironstone yielding gold by dolly test, runs parallel to No. 1 lode, and is about halfway between No. 1 and No. 3 shafts. Owing to the timber merchants here waiting for completion of the railway I am unable to obtain oregon for making ladders. I do not consider the short grained, hard wood, suitable for such purposes as being so likely to warp.

LUCKY GUSS (Cripple Creek).—Extract from manager's letter dated September 10:—The mine is looking well, and I am driving the drifts both ways from the bottom of the shafts in the old workings, and have some good ores in the south drift. Have been into it now for 20 feet. In the fifth level north the ore is a fair grade, from 1 to 1½ ounces of about 12 inches wide, and I think I will cut the chute in the sixth level soon. Am sinking a winze from the fifth to the sixth level, and have 10 or 12 inches of ore that will run 1½ ounces. This is on the south side of the shaft. Between the first and third levels we are taking out ore that runs 1½ ounces, 10-inch streak. The air was so bad in the shaft that I had to stop until I got the winze through from the fifth to the sixth levels. I will then have lots of ground opened up for stoping. The work will take all of this month, so that all the ore I take out will be done developing. The ore in the new shaft is now improving. I am drifting north and in from shaft 20 feet, and the vein shows no indication of running to the Orpha May, and I still think it is a different vein. I think I will be able to take out and market sufficient ore in development to pay all expenses, and from the showing in all the workings will make the mine pay a nice profit when I get to stoping. I have had some crosscut or opencut work done for the Mountain Beauty vein, and I think I have it, but it is very small. I sampled 5 sacks of ore and they showed values of $32 per ton, I then went further north to see if I could find it near the deep shaft, and think from the indications that I will, and if I do will crosscut from the bottom of the shaft for it. I will clean out the first level in the old workings and drive it to the north line, which is yet about 40 feet, and I think I will find some ore before I reach the line, and will start the crosscut for the new vein at a point 40 feet from the shaft. The survey shows that it is 84 feet from this point to the new shaft if the vein goes down straight, but if it inclines to the west, as I hope it will, of course it will not be so far, I hope to cut the Orpha May vein in 40 feet (from the Lucky Guss shaft) and feel sure that I will.

ASSOCIATED GOLD MINES OF WEST AUSTRALIA.—Extract of Mr. Gray's letter to the Chairman of the company, dated Perth, August 19: In the main lode of the Australia we are mining some very rich telluride ore. My last advices from samples taken from the face of both drifts—not that this is an average sample, but it proves the gold-bearing ability of the lode—the first sample from the north end by fire assay gave 147 ounces 13 dwts. The two next samples taken from the end of south drift. No. 1 gave 51 ounces 13 dwts., No. 2 88 ounces 17 dwts. This telluride ore cannot be treated except by a very delicate process of smelting. In order to obtain gold in this ore I have written Mr. Geo. Brookman to make arrangement with the Wallaroo and Dry Creek Smelting Company of South Australia to handle 100 tons per week at each place, and to send me strong canvas sacks for the purpose of shipping it, the ordinary sacks being too loose in the mesh, there being a large percentage of very fine particles in the ore when mined, and by shipping it in ordinary sacks the shaking and handling loses a very large percentage of the fine particles, and they as a rule carry a large percentage of gold. I am endeavouring to make special rates with the railway for the hauling of ore from Kalgoorlie to Fremantle. At the moment they have no back freight, and they are inclined to make to us a liberal concession on their schedule rates. Of course this cannot be done until the macadam road is opened, which will be now in about three weeks, so that inside of a month from to-day I fully expect to be shipping about 200 tons per week that ought to net us about 10 ounces per ton.

EMERALD (REWARD).—The manager under date Yalgoo, August 15, reports as follows:—Point No. 1, new main shaft. This has been sunk a further 2 feet. As some of the timber required has now arrived I have had several sets cut out, and the men are now busy timbering. The 20 feet now sunk. The nature of the country has altered very little.—Shaft No. 5. Fairly good stone is still being obtained from one of the leaders in this shaft.—Battery. The battery is now hung up, and I am afraid it will be some little time before we have it at work again, as at present I cannot see where payable stone is to be got. The leader in shaft No. 5 is of no size, although carrying fairly good gold, and it is my opinion that it will "cut out" in about a fortnight's time—that is, unless some new development takes place. I regret that I am unable to send you the gold returns this week as promised.

YALGOO PUBLIC BATTERY COMPANY.—The following report, dated July 31, has been received from the company's managers, Messrs. F. S. Prail and Co., Melbourne:—Engine shaft. This shaft has been sunk during the past fortnight a further depth of 20 feet, making a total of 37 feet from surface. I have also timbered same 25 feet with 6 by 2 Jarrah, and have contract and made thoroughly secure. Most of the labour employed is concentrated on this shaft.—Underlay shaft. The western drive at water level from this shaft has been extended 19 feet along the the course of the lode, making a total of 33 feet. The reef varies from 3 to 4 feet in width, and is of fair quality stone. About 50 tons of machinery have arrived, and I will proceed to unload same at once.

CROESUS SOUTH UNITED.—Extract from letter from the manager: At the 172 feet level in the main shaft the timber is out and close timbered. The ore taken out of the chamber showed gold freely, and is of a highly payable character, The total amount of payable ore raised during the fortnight is about 38 tons. I have been able to trace a continuation of the ore found in the chamber westward across the north-west drive. Hence I have opened out upon it and have driven 3 feet upon good looking formation. The work will be proceeded with vigorously by continuous day and night shifts of men.—S. E. Horseley, M.C.E.

MESSRS. MATHIESONS' Monthly Mining Handbook for Mid-September is to hand.

MINING IN NORTH ARGENTINE.*

By Captain C C. LONGRIDGE, M.F.I.M.E., A.I.C.E.

Physical Character of the Country, &c.

NORTH ARGENTINE embraces the two provinces of Jujuy and Salta. The former is the least of the Argentine provinces. Extending to the frontier of the Republic, it is bounded on the north by Bolivia, on the south, east, and south-west by the province of Salta. In order of importance, this latter province ranks seventh in the Republic. It takes the form of a half moon; and, as already described, borders Jujuy on three sides.

The climate of both these provinces is dry and healthy, intermittent fevers occurring only in the lower portions of the land. The contour of this part of Argentine is that of a general ascent towards the north. Drawing a line east and west through the town of Salta, the altitude thereabouts is some 3000 feet above sea level. Thence it gradually rises until, at the Bolivian frontier, it attains 10,000 to 12,000 feet above the level of the sea.

It would unduly lengthen this paper to include tabular statements of the assay value of the ores in the several mines. But they are such as to leave no doubt that the whole of these provinces are prolific in valuable ores of lead, copper, and silver; and probably few, if any, parts of the Republic are richer in mineral wealth. In one mine inspected by the writer, seven 40 to 50 lb. samples, taken fairly across the vein, waste as well as clean ore being included in the sample, gave a mean assay of 127·5 ounces of silver, with about 4 per cent. of copper to the ton. But there are published assays of silver ore with 1776 ounces of silver, native copper with 91·26 per cent. of copper, and argentiferous lead ore with 50 per cent. of lead to the ton. As regards gold ores, the writer is scarcely at liberty to give information, and, therefore, draws attention rather to the bulk of the mines at present known—namely, those of silver, copper, and lead, in regard to which the question of most practical or commercial importance is this:—Can these mines be profitably worked?

Natural Difficulties.

Apart, however, from the baneful effects of ignorance and mal-administration in the past, there are undoubtedly certain natural difficulties in North Argentine mining—namely, scarcity of fuel and water, and high costs of transport. From the towns of Jujuy and Salta there is regular and through communication by railway with the ports of shipment, Rosario or Buenos Ayres; but above these towns transport is less easy—roads, in the English sense of the term, are few and far between; tracks, such as they are, in sections, at least, are impassable for vehicles, and in many places mules alone can be relied on for transport to and from the mines. As regards water, very many of the mines in North Argentine are not well supplied. Of course, nearly every mine, when it attains a little depth, collects water, and this can often be utilised for steam power. Springs and streams are fairly numerous, but the prospector has to be cautious in accepting local information as to the existence of such sources.

Mining in the Immediate Future.

It must be remembered that the two provinces are highly mineralised, and the ore is in many cases so rich, even at comparatively superficial levels, that it can be exported and sold at a profit, in spite of the cost of crude and expensive methods of mining and the heavy charges of carriage to Europe. Now crude and costly methods of ore winning disappear before modern and skilled management, while the cost of transport in part is already in progress of diminution, and in the major part is on the eve of elimination. The railway, which has been built as far as Jujuy and Salta, has now been surveyed far beyond this limit. The Argentine Government are alive to the importance of completing the track, which is to constitute the international route between Argentine and Bolivia; and this line, the first section of which, there are grounds to believe, will be speedily commenced, will pass through the heart of the mining district. In the meantime, on representations made to the President of the Republic by the writer and others, greatly reduced rates over Government lines have been granted for the carriage of mining machinery and stores, and a sum of public money has been given for the immediate completion of a cart road to one of the principal mines in the province of Salta. There is little doubt that this work, now in active operation, is but the first of a number of other similar works. With these increased facilities for transport, the cost of carriage from the mines to Salta and Jujuy will be greatly lessened. But the more costly portion—namely, the expense of rail and sea carriage to Europe—is, it has been said, on the point of removal, for it has been practically decided to smelt and treat the ore in the country, leaving only the rich matte or pig metal to export at an insignificant cost. The advantages of this course were so evident, and the saving to be effected so great, that the writer having formed this opinion, applied for and obtained, in conjunction with another gentleman, a ten years' concession for establishing smelting and ore treating works. The opening of these works will, it is obvious, entirely alter the commercial aspect of North Argentine mining. In place of European markets, a local mart for all classes of ore will be established. Numerous mines, therefore, that would not, or would scarcely, have paid to work when the mineral had to be exported, will yield satisfactory profits now that the ore is to be freed from the incubus of several thousand miles of transit. The miner, too, will no longer be under the necessity of resorting to the irregular, extravagant, and limited exploitation that attends the picking of mineral sufficiently rich to bear the cost of carriage to Europe, and the leaving unworked the poorer grade of ore. Henceforth he will be enabled to attack the main body of his ore, following a regular system of winning, with decreased mining expenses and largely increased output. Moreover, fine crushing and close concentration being a positive disadvantage to the smelter, the miner will be relieved from the chief need for an abundant water supply, and can work in districts where the supply is very limited. In a word, the establishment of smelting works, by providing a local market, where fair prices can be obtained, must revolutionise the prospects of mining in North Argentine.

But will the smelter be able to pay the miner a fair price for the ore? In other words, are the physical conditions of the country such that the business of smelting and ore treating can be economically conducted? Well, in the first place, it should at once be said that it is not proposed to establish smelting works for individual mines. The altitude at which the majority of the mines are placed, as well as the scarcity of water and suitable fuel, prohibit such a course. Moreover, small works of this kind could never compete in economy with a large central establishment. The question, therefore, is, can a site be found with all the conditions required for economical smelting on a large scale?

To one personally unacquainted with the country, it might seem desirable to erect the works at Salta, the capital of the province, and the terminus of railway communication with Jujuy, and with the ports of shipment. This, however, is not altogether practicable, as metallurgical works of an adequate character require an ample supply of water. Such a supply is not to be found either at Salta or in the immediate neighbourhood. The water of the River Arias or Salta is neither suitable for power purposes nor available for use, as it is already mostly taken up by water rights for irrigation purposes, and in the dry season little passes the town. That at the neighbouring San Lorenzo is quite insufficient. Another stream, the River Mojotoro, passes within 5 miles of Salta, but is, in the dry season, almost entirely drained for irrigation.

Again, apart from this local deficiency of water there is a lack of timber for fuel, and a still more serious objection that would result from the works themselves. Both calcining and smelting originate noxious gases having a very injurious effect on vegetation. It is, therefore, more than probable that the erection of such works near the town, and its cultivated land would lead to endless complaints, accompanied by heavy claims for damages. The only rational and economical manner of utilising these destructive fumes would be the manufacture of sulphuric acid, but this would somewhat complicate and increase the cost of the plant at the works.

Although Salta, therefore, is not a convenient spot, a very suitable site does exist somewhere lower down the Ferro Carril Central y Norte. Here there is water and fuel in abundance. A river runs close to and parallel with the railway, and, measured in May, gave a sectional area of 200 square feet, with a mean velocity of 376·7 feet per minute, representing a flow of 75,340 cubic feet of water per minute. The fall, roughly estimated, was about 1 in 20. The site, therefore, is provided with an ample and efficient water supply for all purposes, power included. Land which, unlike that at the higher altitudes, is here thickly timbered, can be secured at a reasonable price, and works could be erected close to a station, goods being delivered by a short siding. The ground also is suitable for a terraced plant.

Thus these natural advantages will render smelting exceedingly cheap, and will enable the smelter to pay the miner a fair price for his ore.

* Abstract of a paper read before the Federated Institution of Mining Engineers.

A NOTE ON THE PRESENCE OF FIXED NITROGEN IN STEEL.*

By F. W. HARBORD, Assoc. R.S.M., F.I.C., and T. TWYNAM, Royal Indian Engineering College, Cooper's Hill.

THAT nitrogen exists in steel in a state of combination has long been recognised by metallurgists, and, further, that iron specially nitrogenised by the action of ammonia is materially altered in character is also well known. Although these facts have long been published, we believe that since the paper read by Mr. Allen on the subject before this Institute in 1880 hardly any results have appeared, although no doubt numerous determinations must have been made.

The early workers in this field were Fremy and Boussingault on the Continent, and A. H. Allen in this country, who, in the paper above referred to, gives full details of by far the most ready and accurate method of determining this element as it exists in steel, and is substantially the one that has been used throughout for our determinations.

Nitrogen undoubtedly exists in steel in two conditions, as on solution of the steel in a suitable solvent, or by boring under water or mercury, a far larger amount of nitrogen is obtained than can be found when the fixed nitrogen only is estimated. It appears probable that this nitrogen is merely mechanically occluded in the metal, while the fixed nitrogen undoubtedly exists in combination with some other element present, either iron, manganese, or carbon, but probably the former.

The authors in the course of their work have had from time to time to examine samples of steel which have failed under varying conditions, and in which, in some cases, neither the usual analytical nor the mechanical tests have in any way indicated the cause of failure. In some of these cases they have thought it of interest to determine the amount of fixed nitrogen present, and although they have failed to trace any connection between the amount of nitrogen and the good or bad quality of the steel, yet, in view of the small number of published analyses in which the fixed nitrogen is given, the results they have obtained may be of some slight interest.

In the course of an investigation, referred to in the paper, the authors determined the combined nitrogen in a number of steels made by most of the well-known processes, but their results appear only to confirm the generally accepted opinion that nitrogen, in the proportion in which it is found in commercial steel, has no detrimental effect.

For convenience they have classified the steels under their various methods of manufacture.

The authors then made a series of analyses on metal taken from three charges of basic Bessemer steel, and from one basic Siemens charge, with the object of seeing whether any notable change could be found in the fixed nitrogen in samples taken before and after the addition of ferro-manganese. A sample was also taken about three minutes from the commencement of the afterblow. The results show no appreciable change in the actual percentage of fixed nitrogen, but it is, of course, possible that manganese may replace iron in the nitride present in the blown metal, a point difficult to decide by direct experiment, and one the authors are still investigating.

* Read before the Iron and Steel Institute.

SOUTH WALES MINERAL RAILWAY COMPANY.

The half-yearly ordinary general meeting of the South Wales Mineral Railway Company was held on Wednesday, at the Westminster Palace Hotel, Mr. G. A. Ste. C. Rose presiding.—In moving the adoption of the report (which stated that the railway was still in the hands of the Receiver appointed by the High Court on behalf of the debenture holders, and was being worked by the Glyncorrwg Colliery Company (Limited) under agreements authorised by the High Court in the receivership action), explained that under these agreements the Glyncorrwg Colliery Company rendered half-yearly accounts made up to March 31 and September 30 in each year. Under the receivership proceedings, the directors did not receive or expend, on account of the company, any sums of money. The company owned 13 miles of railway, but there were no passenger trains.—Mr. F. C. Norton seconded the motion, and the report was adopted.

COAL IN BRITISH COLUMBIA.—A despatch from Rossland, British Columbia, announces that large deposits of coal have been discovered midway between that place and the coast. The coal is said to be of the best quality. Considerable strikes of gold have also been made in the Rossland district recently, and the coal is looked to for giving a welcome supply of fuel for mining purposes.

STEEL RAILS FOR RUSSIA.—It is reported that the Russian Government has placed an order with the Begoslovsk Company of Begoslovsk, in the Urals, for 5,000,000 poods of steel rails. This is equal to a little over 80,000 tons.

PROVINCIAL SHARE MARKETS.

THE CORNISH MINE SHARE MARKET.

Mr. MICHAEL WILLIAMS BAWDEN, Mining and Assaying Offices, Liskeard, Cornwall, writes September 24:—The Mining Share Market shows a thorough depression on the further reduction of the tin standard, with only an occasional transaction during the week. Quotations mostly nominal. Quotations:—Basset United (Limited), 15s. to 16s.; ditto (5s. paid), 4s. to 4s. 6d.; Blue Hills c.p., 4s. to 5s.; Carn Brea (Limited), 1s. 6d. to 2s.; ditto (2s. 6d. paid), 2s. to 2s. 6d.; Devon Consols, 17s. 6d. to 18s. 6d.; Dolcoath (Limited), 17s. to 18s.; ditto (7s. 6d. paid), 5s. 6d. to 6s.; East Pool, 1 to 1⅛; Killifreth (Limited), 1s. 6d to 2s.; Levant, 2¼ to 2⅜; Polberro, 4s. to 5s.; West Kitty, 2 to 2⅛; Wheal Grenville, 5⅞ to 6; Wheal Kitty, 2s. 6d. to 3s.; Wheal Metal, 3s. to 3s. 6d.

Messrs. ABBOTT and WICKETT, Stock and Share Brokers and Mining Share Dealers, Redruth, write under date of September 24:—Very little improvement can be reported during the past week in the Cornish Share Market, which remains in a very dull state, with but little doing, the only business being a few transactions in Dolcoaths and East Pools at lower quotations. Quotations herewith:—Blue Hills, 1s. to 2s.; Basset Mines (fully paid), ⅜ to ⅝; ditto (5s. paid), 4s. to 5s.; Dolcoath (fully paid), 17s. to 18s.; ditto (7s. 6d. paid), 5s. to 6s.; East Pool, ⅞ to 1⅛; Killifreth, ⅛ to ⅜; Polberro, ⅛ to ⅜; West Kitty, 1⅜ to 2⅛; Wheal Grenville, 5⅛ to 5⅜; Wheal Kitty, ⅛ to ¼; Wheal Metal (3s. paid), 3s. 6d. to 4s.

MANCHESTER.

Messrs. JOSEPH R. and W. P. BAINES, Stock and Share Brokers, Queen's Chambers, 7, Market-street, write September 24 (noon):—The past week has furnished several fluctuations in the major markets on varying movements on the prospect of money, more especially as regards the Bank rate. For some few days the opinion seemed to gain ground that the official minimum would not be raised to-day, and markets strengthened under that influence, but later, owing to withdrawals of gold, the reverse opinion again became prevalent, and figures in many cases fell away. These variations occurred mostly in the home railway market, and apply most distinctly to the active issues thereof—viz., the ordinary and deferred stocks, in which, however, on balance, the declines far outnumber the advances, notwithstanding that the improvements are a respectable minority. The falling away in values of the "gilt-edged" securities, as they have been called, has continued almost all round, and in many cases the depreciation is very marked from the very high figures they had attained. Hence Consols, Colonial stocks, &c., and Home Corporation stocks and debentures mark numerous and sometimes heavy decline, without any advance to set against them. Foreigners are generally better, but in small fractions. In European issues changes are very slight, though in the upward direction, with the exception of Russian Four per Cent., which quote ¼ lower. This record of changes gives the movements of the week, so that it is unnecessary to go into the daily details. Coming to the general classes of shares, banks are mostly lower in fractions, others mostly irregular, and business in all departments restricted. Below we give in full the changes on the week, which speak for themselves.

ENGLISH RAILS.—Higher: Great Eastern, ⅛; York Deferred, 1¼; Great Western, ⅜; Midlands, ⅛.—Lower: Caledonians, 2 to 3; ditto Deferred, ⅜; Lancashire and Yorkshire, ⅛ to ⅜; Brighton A, ⅛; Chathams, ⅛; London and North-Western, ⅛ to ½; Sarus, ⅛; Districts, ⅛; North British ⅛; Berwick, ⅛; Dover A, ⅜ to ⅝.

CANADIANS AND AMERICANS.—Higher: Atchisons, ⅜; Atchisons Preference, ⅛ to ⅜; Canadian Pacific, 1 to 1⅛; Mexican First Preference, 1⅛ to 2; Mexican Second Preference, 1⅛; Central Pacific, ⅛; Milwaukees, ⅜; Denvers, ⅛; Denver Preference, ⅜; Louisvilles, ⅜; New York Centrals, ⅛; Erics, ⅛; Ontarios, ⅜; Norfolk Preference, ⅛; Readings, 1 to 1⅛; Union Pacific, ⅛.—Lower: Trunk Ordinary, 1-16; Trunk Guaranteed, ⅛.

CONSOLS.—Lower: Two and Three quarter per Cent., ⅛ to ⅜.

COLONIAL STOCKS, &C.—Lower: Canada Registered, 1; Natal Inscribed, 1; New South Wales Inscribed, 1; Victoria, 1908, 2.

CORPORATION STOCKS AND DEBENTURES.—Lower: Birmingham Three and a-Half per Cent., 4; Blackburn Four per Cent., 2; Douglas Three and a-Half per Cent., 1; Hull Three and a-Half per Cent., 1; Liverpool Three and a-Half per Cent., 3; Manchester Four per Cent., 1 to 2; Oldham Four per Cent., 2; Stockport Three per Cent., 1.

FOREIGNERS.—Higher: Argentine Six per Cent., ⅛; Egyptian Unified, ⅛; Mexican Six per Cent., 1; Portuguese Three per Cent., ⅛; Spanish Four per Cent., ⅛; Turks, 1891, and Group 4, ⅛; Uruguay Three and a-Half per Cent., ⅛.—Lower: Argentine Five per Cent., ⅛; Brazilian Four and a-Half per Cent., 1; Russian Four per Cent, ⅛.

BANKS.—Higher: Parr's, ⅛.—Lower: London and Midland, ⅛; Manchester and County, ⅛; District, ⅛ to ¼; Union of Manchester, ⅛; W. D. and Manchester and Salford, ⅛.

INSURANCE.—Higher: Equitable Fire, 6l. London and Lancashire, ⅛; Maritime, 1-16; Reliance Marine, ⅛.—Lower: British and Foreign Marine, ⅛; Liverpool, London, and Globe, ⅛; Royal, ⅜.

COAL, IRON, &C.—Higher: Dorman Long, 1-16 to ⅛; Parkgates, ⅛; Sadlers, ⅛.—Lower: Bolckow, (£20 paid), ⅛ to ⅛; ditto, (£12 paid), 1-16 to ⅛; John Brown's, ⅛; Sharp Stewarts, ⅛; Sheepbridge A, ⅜; ditto B, ⅛; Tredegar A, 1-16 to ⅛.

TELEGRAPHS AND TELEPHONES.—Higher: West India and Panama, ⅛.—Lower: Anglo-American 1; ditto Deferred, ⅛; ditto Preference, 1⅛; Direct United States Cable, ⅛; Eastern Preference, ⅛.

BREWERIES.—Higher: Springwell, 3-16 to ⅛.—Lower: Bents, ⅛; Manchester, ⅜ to ⅛; Parker's, ⅛.

MISCELLANEOUS.—Higher: Armitages, ⅛; Bradbury's, 1⅛; Kellner Partingtons, ⅛; Pacific Steam, ⅜; Salt Union, ⅛; Ship Canal Preference, 1-16; ditto Debenture, 1.—Lower: Bowman Thompson, ⅛; Brunner Mond, ⅛; Coats Ordinary, 1⅜ to 2; Eastmans, ⅛; Hetheringtons, ⅛; Howard and Bullough, ⅛; Hudson's Bay, ⅛; Reston Proctor, ⅛; Spiers and Pond, ⅛; United Alkali, 1-16; Sir J. Whitworth's, ⅛ to ⅛; Gas Light A, 5.

LATER (4 P.M.).—The advance in the Bank rate having been thoroughly if not over anticipated did not affect markets adversely. Indeed, prices have in many cases mended after the announcement without any particularly strong rise in any instance in home rails. Americans better all round where altered down to the close. In Canadians, Trunk traffics are considered satisfactory, and they are firmer along with Yankees. Mines on the dull side, but Rio Tintos as an exception are better.

SCOTCH MINING AND INDUSTRIAL COMPANIES SHARE MARKETS.

STIRLING.—Mr. J. GRANT MACLEAN, Stockbroker and Ironbroker (September 24), writes:—During the past week there has been little disposition to do business, and prices have declined on sales to close accounts. Sales are partly due to the upward tendency of the money market, and to the unsettled state of affairs in Turkey.

In shares of coal, iron, and steel companies prices are generally higher, especially Cowdenbeath Fife Collieries on amalgamation proposals. Harvey's Steel Continental shares offered. Marbella are at 30s., Steel Company 5⅛.

In shares of copper concerns there is little alteration to notice. Tinto rose from 23 5-16 to 24⅛, and are now 23¾. Arizona 52s. Mount Lyell 8, and Tharsis 114s. 6d.

In shares of gold and silver mines there has been less business doing. African Recovery have been fluctuating between 54s. 6d. and 42s. The statement has been contradicted that judgment was given in the company's patent case, and it appears the Court in the Transvaal before which the case comes does not meet till after November 1. The company's general meeting is to be adjourned from September 30 to October 15. Randfontein are lower, notwithstanding very satisfactory accounts from the subsidiary com-

panies. Chartered have only varied from 60s. 3d. to 62s. 9d., while Consolidated and East Rand have also been steady. Bayley's No. 2 South shares offered. Afrikander are at 35s.; African Estate, 33s.; Associated Southern W.A., 32s. 6d.; Block B, 35s.; Balkis Land, 5s. 9d.; Barrett, 14s.; Broken Hill, 48s.; Bonanza, 63s. 9d.; Cassel, 18s. 6d.; Croydon Consols, 8s. 3d.; Consolidated Murchison, 10s.; Cripple Creek Gold Fields, 9s.; Cumberland, 7½d.; Emma, 1s. 6d.; East Orion, 4s. 3d.; Frontino, 25s.; Glenrock 1s. 9d.; Great de Kaap, 2s. 6d.; Ginsberg, 43s. 9d.; Gem of Cue, 3s.; Gold Fields of Uruguay, 7s 6d.; Halnault, 46s. 6d.; Hit or Miss, 41s. 3d.; Haurak', 18s. 6d.; Hannan's Oroya, 32s. 6d.; Hannan's Star, 26s. 3d.; Hannan's King, 33s. 9d.; London and Paris Corporation, 22s. 6d.; Lisbon, 6s. 3d.; London and Globe Finance, 88s. 9d; Leechdale Rhodesian, 5s. 6d.; Lucky Guss, 7s. 6d.; Lake View Extended, 30s.; Modderfontein B, 28s. 9d.; McCulloch's Coolgardie, 2s. 9d.; Menzies Golden Age, 10s.; Mallina, 6d; Massi Kessi, 9s. 3d.; Murchison Gold and Diamond, 2s.; North Croydon, 3s.; New Stevr, 35s.; Orion, 19s.; Pauri Central, 27s. 6d.; Primrose, 5½; Pilbarra, 13s. 6d.; Pestarena, 5s. 3d.; Royal Oak, 2s. 9d.; Rhodesia, 25s. 3d.; Spes Bona, 31s. 3d.; Scottish African, 13s.; Springdale, 1s. 6d.; Sheba Queen, 6s.; True Blue, 7s. 6d; United Gold Fields of Manica, 10s. 9d.; United Rhodesia, 13s. 9d.; Violet, 22s.; Wealth of Nations, 21s. 6d.; Woodstock Transvaal, 28s. 9d.; and West Australian Concessions, 30s.

In shares of miscellaneous companies there is not much alteration to notice. The Glenboig Fire Clay dividend is announced at 7½ per cent., which compares with 5 per cent. at this time last year. Oil companies shares steady. Broxburn are at 8½, Pumphers on 5 7-16, and Young's 27s. 6d. Aberfoyle Slate Quarry are at 10 1-16, Lawes' Chemical 6½, and Nobel's Explosives 18½.

EDINBURGH.

Messrs. THOMAS MILLER and SONS, Stock and Share Brokers, 69, Hanover-street, Edinburgh, report as follows under date of September 24:—Since last week's report prices have been unsettled, the continual withdrawal of gold for America and the disturbed state of matters at Constantinople having created a feeling of uneasiness. The advance in the rate of discount to-day to 3 per cent. was followed by an improvement in prices, the movement having been fully anticipated. Caledonian Railway Deferred now stands at 57½, as compared with 58½ a week ago; North British at 44 7-16, as compared with 45½; Glasgow and South-Western at 132½, as compared with 133½; and Great North at 118½, as compared with 119. Highland has fallen from 106½ to 101½ on apprehensions as to the results of the past half-year's working. Preference stocks have been freely offered, but the transactions have been comparatively few, as investors have been cautious. In insurance shares, Globes, Mercantile, and Royal are lower, but London, Lancashire, and Northern are higher. Banks show no changes of importance. Cowdenbeath Coal have fallen from 20 to 18¾, Fife Coal from 20½ to 20, Stewart and Clydesdale from 13¾ to 13½, Broken Hill from 49s. to 47s. 9d., Young's Paraffin from 28s. to 27s. Rio Tinto have changed from 23 7-16 to 23½, Tharsis from 113s. 6d. to 115s. Distillers have declined from 21 to 20. Prairie Cattle shares have fallen from 21s. to 20s., J. and P. Coats from 59¼ to 58½, Edinburgh and District Tramways from 9 to 8¾.

Messrs. JOHN STEVENSON and COWPER'S weekly report (September 24) states:—The Glasgow market is reported "a little better" to-day, but prices of pig iron are lower all round as compared with a week ago, and there is a nervousness about the trade, notwithstanding some favourable conditions, notably the very large shipments from this district, which amounted to over 100,000 tons up to last night, or a little more than 25,000 tons above last month's record exports. Shipments from Scotland are up to the average, and from the West Coast considerably in excess of a year ago. Stocks in Connal's Glasgow stores are increased by 97,000 tons since December 31, but are now stationary. In Cumberland there has been an increase of 16,000 tons, whilst in Cleveland there has been a reduction of 6000 tons in the same period. Makers' prices for Middlesborough G.M.B. are:—No. 1, 39s. 6d.; No. 3, 38s. (buyers, 37s. 9d.); and forge, 36s. 6d. Special brands of No. 3 are 39s. Hematite is firmer at 45s. 9d. and some of the smelters have closed their order books for forward engagements. The cost of making this sort is largely increased by the extra price of Spanish rubio ore, which has gone up to 13s. 6d. c.i.f. Tees; higher freights as well as enhanced value at Bilbao accounting for this. There is steady employment for the rolling mills, but no great demand, especially for shipbuilding purposes. Coke is in fair request for shipment at 15s. 6d., and for furnaces at 13s. 3d. Coal is still at low rates for manufacturing and bunkers. The Glasgow market closes—"Quiet, small business." Scotch, 46s. 2d.; Cleveland, 38s. 1d.; Cumberland hematite, 47s. 1½d.; and Middlesborough hematite, 45s. 1d. cash sellers. The Bank rate has advanced to 3 per cent. to-day.

MINING IN CORNWALL AND DEVON:

NOTES ON MINING IN THE WEST.

(FROM OUR OWN CORRESPONDENT.)

To speak of the Cornish Share Market is to refer to something which at the present moment absolutely does not exist. There has been some exceedingly quiet times in the market during the last two or three years, but with all the depression we doubt if there has been any time when matters in connection with Cornish mining were more featureless. September is usually a quiet month because of the absence of both buyers and sellers on holiday. But this year surpasses all its predecessors. There has been no particular event to which this increased depression can be directly attributed, and that is probably the result of the continued indisposition of speculators to dabble in home mining until they see some signs of a permanent increase in the price of mineral. The depression on the London markets is also being reflected to a large extent, for the experience of Cornwall has always been that while London speculators are making money they are content to deal in home shares as a means of scattering their eggs over a number of baskets. But at this moment there is no demand from outside for any shares, and as people in the county are pretty well stocked, the only hope of a revival in the market seems to be in either an improvement in tin, or a more pronounced disposition on the part of outside capitalists to take off some of the stock which is now overloading those in the county who would otherwise be speculating.

THE work of remodelling some of the principal mines goes on apace, and this is the most satisfactory feature in connection with the industry, because the judicious use of the capital they now have at their command means the continuance of the concerns for a considerable time, and will enable them to put themselves in such order as to be able to compete even with the alluvial deposits of the Straits. Nothing, for instance, could be more miner-like and straightforward than the policy on which the Carn Brea and Tincroft Company has entered. The directors are now going to do what they have known for years to be the right policy, but which they have been prevented from following by lack of capital. They intend to concentrate their efforts on one particular line of action, and no one who knows the district will hesitate to express a pretty confident opinion as to the probabilities of the discovery of important deposits of mineral. It is surely better to vigorously open up one particular area of ground, even if it cost £20,000 or £50,000, than it is to continually potter along losing a few pounds a fathom in 30 or 40 points in the mine at one time, and with very little prospect, because of the lack of speed, of meeting with much. The shareholders have certainly entered on pure speculation, but it is one such as few who know the past history of the mine, the character of the ground, and the run of the lodes, would hesitate to embark on.

Blue Hills, the little mine in the St. Agnes district, has had a particularly chequered career, and been very near suspension several times. The management seem, however, to have again pulled it out of the fire, and they have now more than a prospect of a successful future. There is some talk of the formation of a limited company to develop the property more vigorously, and if the executive prove the value of the discovery recently made they ought to have very little difficulty in obtaining the money they will want. Our opinion is that a Limited Company for Blue Hills would be very desirable, because obviously a little mine, which has been living from quarter to quarter on means drawn mostly from the pockets of the shareholders, is not likely to have spent much money in the machinery which would be necessary for its working on a larger scale. With new capital such improvements and additions could be made as would enable the executive to take away the mineral much more economically than would be possible under existing circumstances.

IT is reported that Wheal Agar committee intend asking Lord Robartes to renew their lease, which expires on Tuesday.

MINING PROSPECTS IN RHODESIA.

Mr. SCOTT-MONTAGU'S IMPRESSIONS.

A DINNER of the Anglo-African Writers' Club was held on Monday night at the Grand Hotel, the guest of the evening being the Hon. Scott-Montagu, M.P., who has just returned from a visit to the Transvaal and Rhodesia. Mr. W. GARLAND SOPER, who is Chairman of the club as well as of the Sheba Gold Mining Company, presided, and amongst the several other prominent South Africans present were Messrs. J. Paddon, Fred Dyer, T. F. Forrester, W. Eglington, J. Hamilton, &c.

The CHAIRMAN, in proposing the health of Mr. Scott-Montagu, said that to those who were familiar with South Africa the recent course of events in that country had produced many instances of the different point of view from which residents there—and especially the younger members—regarded political affairs to that held over in England. Those South Africans who had lately visited England, and who were so ready to propose remedies for the difficulties of South African politics, would, however, he hoped, go back with the conviction that people on this side were at one with them in desiring only to promote the interests of Great Britain in that country. (Hear, hear.) They had had both a revolution and a rebellion in South Africa. The revolution had been associated with the demand for constitutional reform, but constitutional reform and violence were two things which could not be assimilated. They were essentially distinct. The rebellion of the Matabele now appeared to be stamped out, but there was still a very grave danger to be dealt with in the shape of the rinderpest. Even in the mining districts of the Transvaal that dreadful plague was causing the gravest alarm, and its effects throughout the country would undoubtedly be very serious. However, speaking as one who had lived in South Africa, he was convinced of two things concerning it—that it was a country of ups and downs, but that it was also a country of extraordinary recuperative power. (Hear, hear.) Upon the question of the Jameson raid, Mr. Soper said that the enquiry by the Cape House of Assembly did not appear to have completely elicited the facts, but he was of opinion that a good deal more would be learnt from the enquiry which was to be held by the Imperial Parliament. In conclusion, he mentioned that Mr. Scott-Montagu had been in Johannesburg just after the revolution, and in Rhodesia during the struggle with the Matabele.

Mr. SCOTT-MONTAGU, in responding, said that in dealing with the recent Uitlander outbreak in the Transvaal, he must express his surprise that such a method of reform should ever have been attempted. For it must be admitted that Dr. Jameson's raid was undertaken with the intention of seizing the Boer Government and reforming it afterwards. (Hear, hear, and laughter.) The Uitlanders had time on their side. The intermixture of the two races by marriage was proceeding so rapidly that in the next generation the Boers would be English in their aspect and their sympathies. The deity to be appealed to was rather Venus than Mars. (Laughter.) Already English was the dominant language in South Africa, and the educated Boers of the Transvaal were dependent upon the English Press for their views. With the large number of Englishmen and women who were arriving every week in South Africa the present racial difficulties would not be of long duration. He looked to the intermingling of English and Dutch to prevent that struggle between the two races to which many persons looked forward as the necessary fate of South Africa. (Hear, hear.) With regard to Rhodesia, he believed strongly in that country, both political and commercially—(hear, hear)—but he considered that a mistake had been made in the method of its development. Cæsar, when he entered upon a campaign, made roads first and entered upon military operations next. We had reversed the order. If the railway had been pushed forward at once to Palapye or Macloutsie, the operations against the Matabele would have been enormously simplified. At present the road to Buluwayo was in a frightful condition—almost impossible for about two months of the year. The railways, however, would be made, and with their construction Rhodesia would make rapid advances. He believed in the country as a mining country—that is to say, he believed that it contained payable gold, and he also believed in it most strongly as an agricultural country. The climate was a splendidly healthy one—he might almost say that there was no illness except the "whisky fever," which was an inevitable incident of frontier civilisation. He heard people protest against the present price of Chartered shares, and some of them spoke of the Chartered Company as "Rhodes, Unlimited." Well, he did not want to make a Stock Exchange speech; but he was not at all sure that "Rhodes, Unlimited," was not a good investment. (Hear, hear, and laughter.) Other men were capitalised at high rates—Mr. Barnato, for instance—and he was not sure that he also was not a good investment. Seven millions, he was certain, would be a small sum at which to capitalise Lord Salisbury or Mr. Balfour. But apart altogether from Mr. Rhodes' individuality, seven millions or ten millions were very small amounts at which to capitalise the enormous influence which the possession of Rhodesia gave to this country in the enormously important work of civilising Africa. It was due to the Chartered Company that there was a huge red streak across the map of Africa in place of the yellow streak which would otherwise have existed from Damaraland to German East Africa. (Hear, hear.) The Chartered Company occupied a position which was, he believed, unique in English history, in that they were paying all the costs of a war which was being carried out under the direction of Imperial officers. It was only a matter of justice that if the Imperial authorities took over the control of Rhodesia—as in all probability they would do—the Chartered Company should be compensated for the heavy expenditure they had incurred in acquiring that territory. (Applause.) As to dividends, it was not reasonably to be expected that the initial stages of developing a great colony should prove remunerative. He believed that more money was lost than was made in the early history of English enterprise in India. But he repeated that from his personal experience of the country he had every confidence in the commercial future of Rhodesia, and he was confident that its possessions was a matter of vital importance to this country as a great power. When we ceased to colonise we should begin to decay, and it was possible that Africa would eventually become the "cockpit of Europe." The fact that we had established our position there was, therefore, a subject for national congratulation. (Applause.)

SECONDARY HAULAGE.*

By W. GALLOWAY.

IT is now nearly 30 years since the committee of the North of England Institute of Mining and Mechanical Engineers issued their report on underground haulage. That report dealt with four systems of haulage—endless chain; endless rope, with single tubs moving slowly; endless rope, with trains moving rapidly; and tail rope. It is one of the most valuable contributions that has ever been made to the literature of mining, and it has helped to spread a knowledge of the subject of underground haulage by mechanical means all over the world. The committee dealt only with the subject of conveying large quantities of coal from one point to another at distances of many hundreds of yards apart, and were consequently able to show certain marvellously low costs per mile ton.

But in every mine a secondary system of haulage is necessary—namely, that which serves the purpose of collecting the coal from the working places into a siding, from which it may be conveniently taken away by one or other of the systems referred to in the committee's report; and conveying the empty wagons, which are brought to the siding, back to and distributing them amongst the working places. This operation is usually carried out by boys, men, ponies, or horses. It involves taking single wagons part of the way, at least; and for this reason, as well as because delays of one kind and another are inevitable, it is necessarily more expensive per ton per unit of distance than the primary haulage on important horse ways or engine planes.

If the total cost of haulage in a mine for any given time be divided by the total output of coal for the same period, the average cost of haulage is obtained, and the average cost of one mine can be compared with that of another. The comparison is not, however, of any particular value unless the conditions and the distances are alike in both cases. The committee dealt with the question of large quantities and long distances in a very careful and exact manner, and there seems to be hardly anything left to say on that part of the subject; but, so far as the writer can gather, the question of collecting and distributing has nowhere received the same kind or degree of attention, although he believes it will be found, on enquiry, that it is deserving of the closest scrutiny.

In the case of long engine planes or horse roadways, in which a primary system of haulage is carried on, there is a fixed point at each end. The distance between the two points is known, and the cost of haulage per unit of distance can at any time be ascertained by dividing the wages and other expenses by the number of tons conveyed in a given time. In the case of haulage from the faces to a siding, there is only one fixed point, or collecting siding, and the faces are always moving farther and farther away from it. Moreover, no two faces are, as a rule, at the same distance from the collecting siding. Under these circumstances, it is necessary to ascertain the following particulars before we can arrive at the true cost per ton per unit of distance of the haulage from any particular district of faces to a collecting siding:—

1. The distance of each face from the siding.
2. The number of tons of coal sent away from each face within a given time.
3. The aggregate amount paid for haulage in the district in question during the same period.

The distances may be best ascertained by direct measurement at the commencement and conclusion of the period, or, if it is very short, one measurement will suffice. The quantity of coal sent away from each face within the period, as well as the wages paid for haulage in the district, may be taken from the pay book, and the period itself should obviously be made to coincide with one or more ordinary pays. Where horses or ponies are employed, the cost of feeding them, providing harness, renewals, grooming, &c., should all be taken into account.

* From a paper read before the Federated Institution of Mining Engineers.

The receipts of the COMPANHIA DE MOZAMBIQUE for the month of June amounted to £9310. The ordinary expenses for the same period amounted to £1086, of which £500 was expended in public works. Beira customs for the period under review amounted to £2724.

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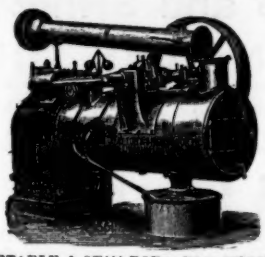

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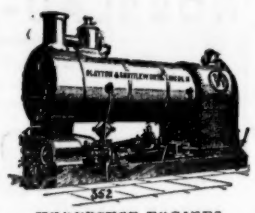

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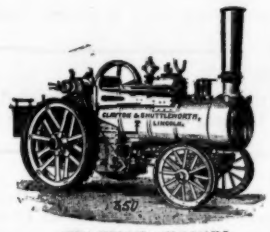

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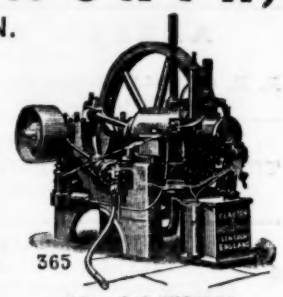

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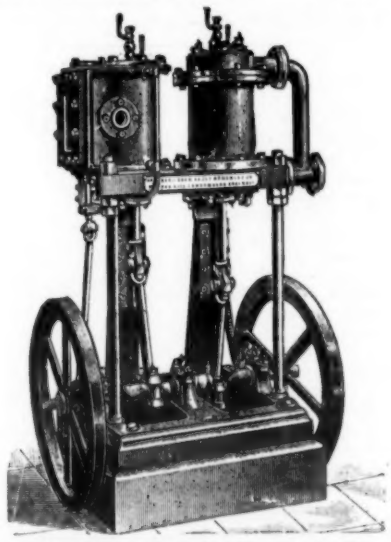

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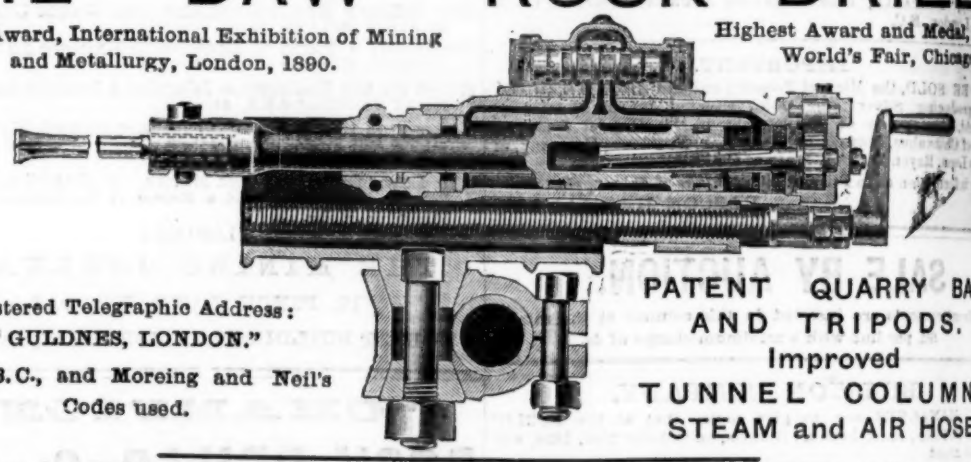

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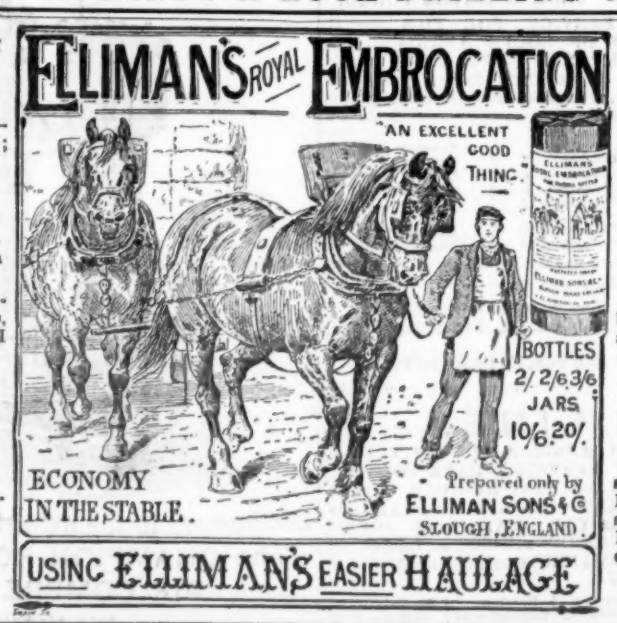
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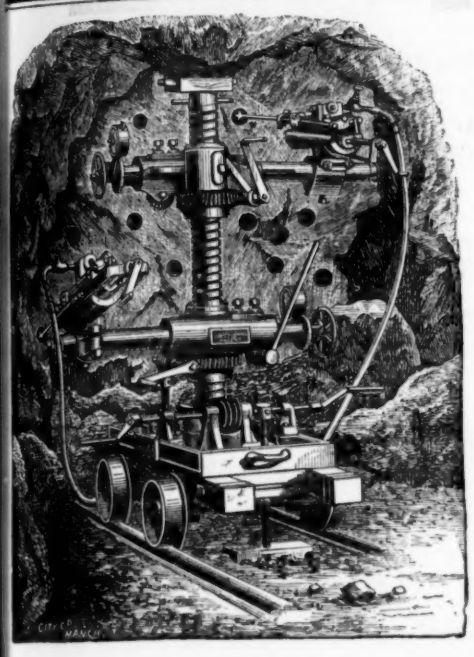

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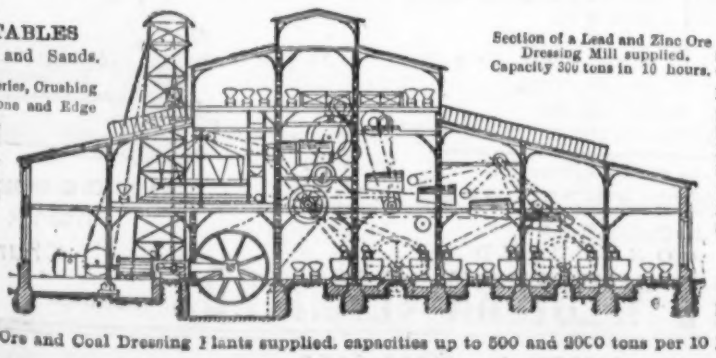

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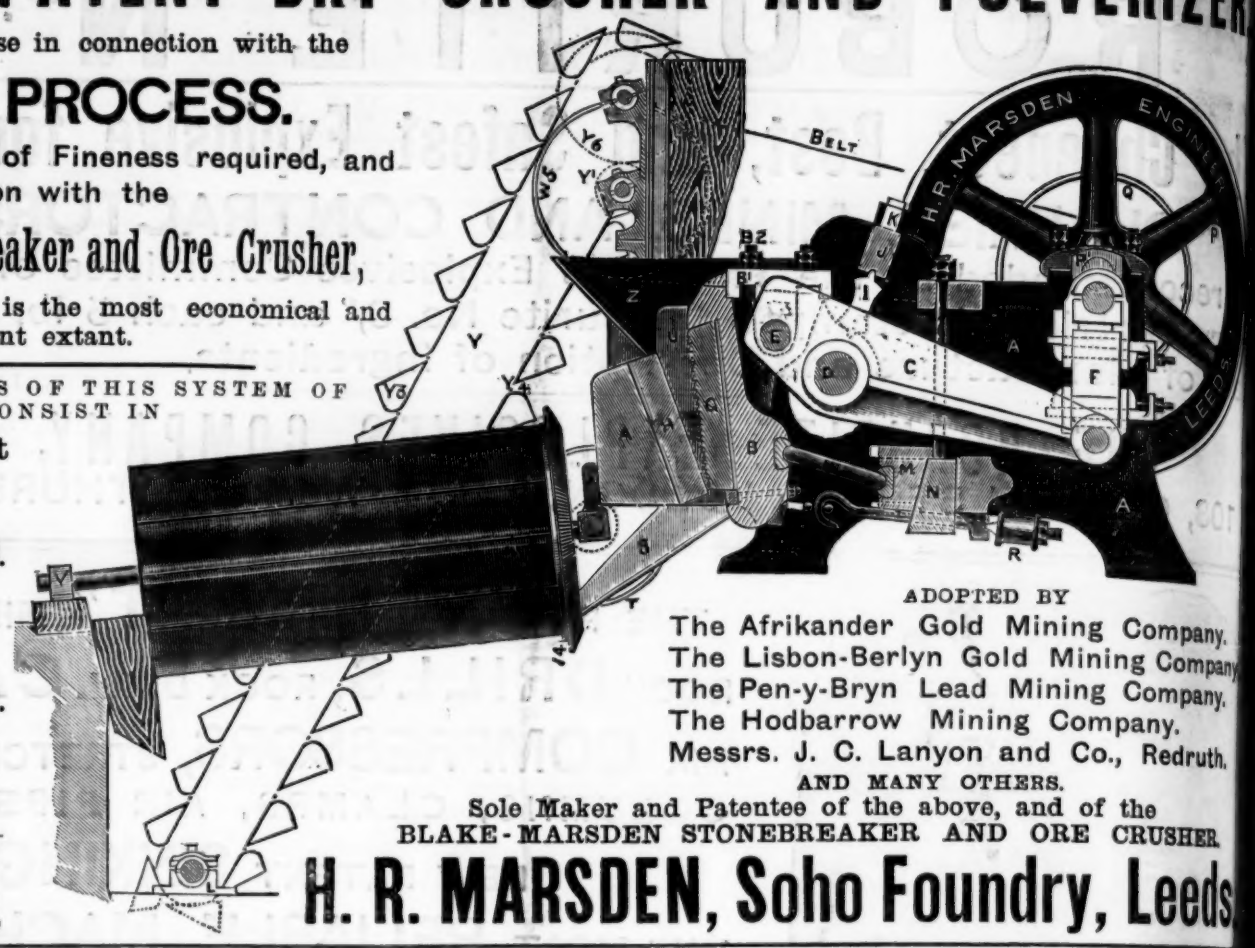

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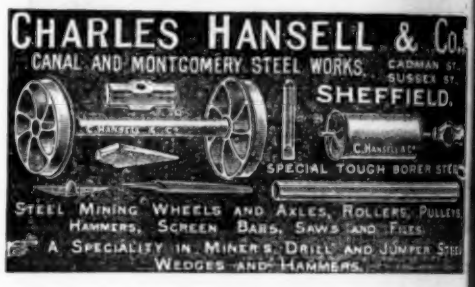

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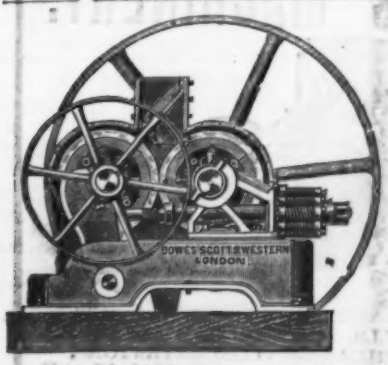

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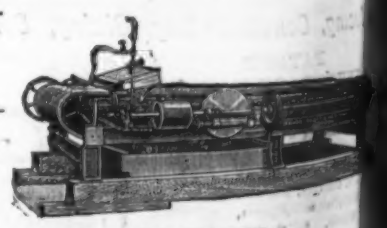

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Printed for the Registered Proprietors by JOHN ROBERT GALE, at their Printing Offices 1, DORSET BUILDINGS, SALISBURY SQUARE, in the Parish of St. Bride's, in the City of London.—September 26, 1896.